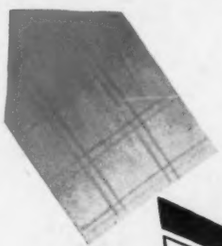
MAY, 1929

COTTON

THE TEXTILE MANUFACTURING JOURNAL



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Vol. 93 **COTTON** No. 7

May, 1929

W. R. C. SMITH, Publisher
T. W. McALLISTER, Editorial Director **ROBERT W. PHILIP, Editor**

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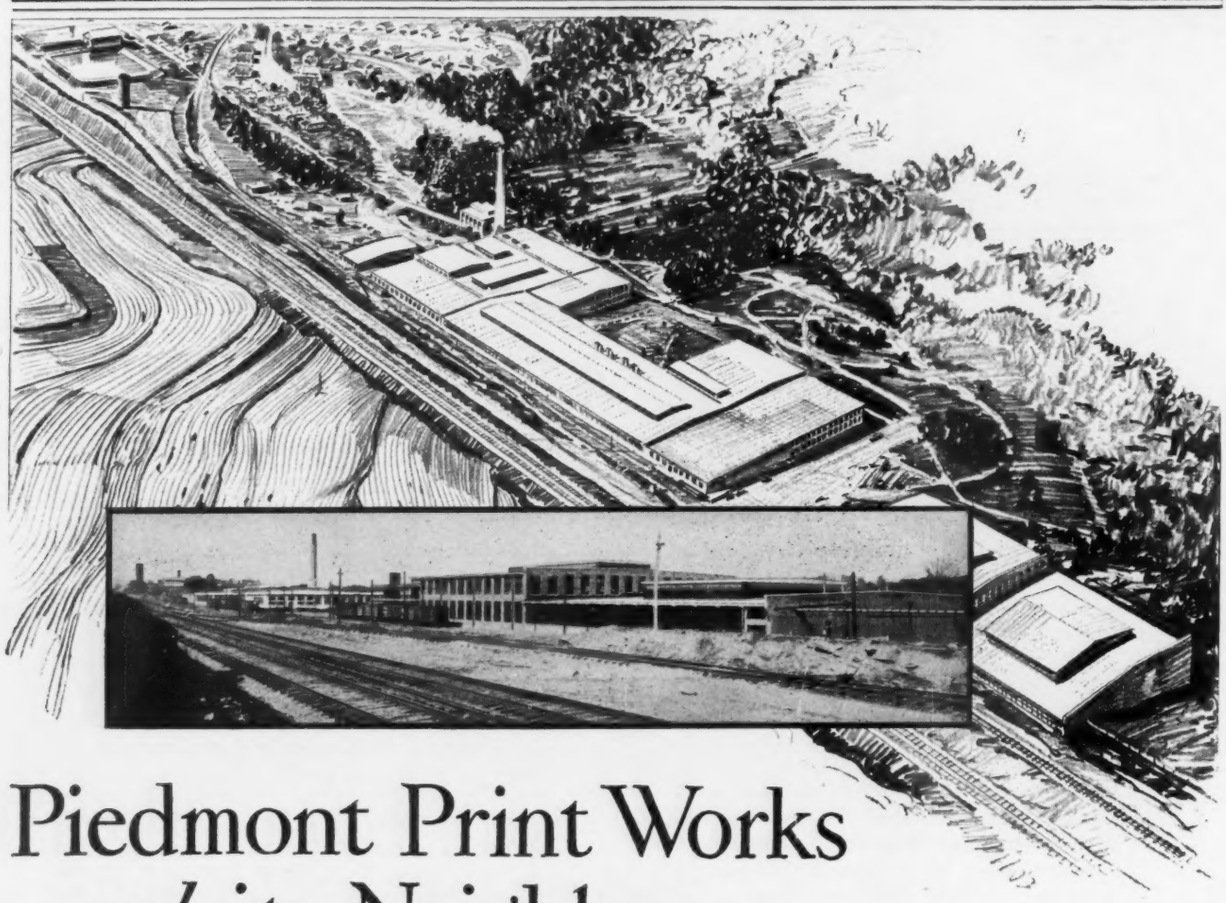

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COTTON

Vol. 93, No. 7.
May, 1929.

At Thomaston, Regardless of the Job

We Pay *for* Accomplishment

By **A. E. Massey, General Supt.**

Thomaston Cotton Mills, Peerless Cotton Mills, and Thomaston Bleachery, Thomaston, Ga., and Aldora Mills, Barnesville, Ga.

As Told to Robert W. Philip.

HERE is the story you will want to read. In it Mr. Massey tells in a straight-forward, matter-of-fact way how the Thomaston mills applied to their method of wage payment a yardstick to determine the value of jobs, and how a definite incentive was provided to each operative to produce more work for an increased wage.

Appreciation to the mill management for permission to present this description, and to Mr. Massey for his clear and conservative discussion, is hereby expressed on behalf of ourselves and our readers. Editor COTTON.

IN responding to COTTON'S request to describe the system of increasing efficiency and wages at our several mills, I am glad to outline specifically how the plan was applied, how it functions and some of the results achieved during the two and a half years of experience we have had up to this time in its operation. It is a system which benefits both the mils, as employers and producers, and the operatives, who form so essential a part of the productive scheme of our organization.

Briefly, the system offers to our management, on the one hand, certain definite possibilities in the measurement and control of human effort in our mills, and permits us to compensate our labor equitably, fairly and accurately in accordance with their individual and collective accomplishment. To our operatives, it gives a definite incentive to produce more, a greater compensation based upon their production, and a guarantee of continuous activity and financial reward based fairly and definitely upon the actual amount of accomplishment resulting from their efforts.

I might say at this point that the results of the system include the opportunity of rewarding, in addition to the direct producing employees, the overseers and other supervisors, as well as the indirect or non-productive labor in our mills, upon the same basis of accomplishment. This has created in the entire organization at each plant an increased interest on the part of everyone. The productive worker is rewarded in accordance with his own accomplishment, while the supervisory and non-productive elements profit in proportion as they respond to the influence of their own efforts upon the accomplishments of the others.

The basis of the method is a universal unit of measurement of effort, known as the *"B"*. The term is an abbreviation of Bedaux, the name of the industrial engineer who devised this method of measurement. In simple terms, a "B" is the amount of work performed in one minute of time, by a normal person, on any job, plus a fraction of a minute for rest or relaxation. Thus a 60-*B* hour means the amount of work produced in one hour of time by a normal person working at a normal rate of speed and involving a period of rest, delay or relaxation. By a 70-*B* hour, therefore, is meant that an operative has accomplished, in an hour's time, the equivalent of 70 minutes of normal expenditure of effort under the same conditions.

It is not my purpose to attempt to explain exactly how the unit *B* was originally determined, but to show how it has been applied to our mills, and how it is used as a universal indicator of efficiency and as a measure of individual accomplishment. By "universal" I mean that with *B*-values established in different departments of the mills, or on different kinds of work, every operation is immediately comparable with regard to the efficiency of the individuals performing those operations. Before completing this article I shall try to make this clearer, to show that upon this basis of common measurement we can, for example, compare the efficiency of any two departments in our organization, regardless of whether they are similar in operation, product, or size. That is, if from No. 1 Mill's card room we secure a 72-*B* hour for the entire department, and the weave room, we shall say, at one of our other plants, shows also a 72-*B* hour, we know positively that the efficiency of those two departments is the same, although their size, nature of product and operation, etc., may differ widely. The practical mill man will heartily concur in the statement that without such a common denominator, or unit of measurement, no such definite comparison would be at all possible. Thus, the *B*, in addition to providing a means of measuring the accomplishments of the individual worker, furnishes us a common yardstick for determi-

ning comparative results. It is obvious, of course, that by the same token the relative efficiency of any given department may be compared from time to time, week against week, and year against year or for any periods.

Before going further I want to relate something of the history and manner of applying this method of payment to our plants. A corps of engineers, trained in the study of human effort and energy, were engaged to make studies of the various operations involved in our processes. The work was started gradually, being applied at first to only one department, and being extended to other rooms slowly and carefully.

I might say here that our plants were the first cotton mills in which these engineers had made their studies, but for their purposes their utter lack of knowledge of our processes and machines was not in any way a handicap, but in many respects an advantage. Their duty was to determine, first, the conditions which existed in our plants by studying each job and each operation and then ascertain, upon the basis of their knowledge of human effort and ability to produce, whether in each case the operative was accomplishing that which could normally be expected on that job. By taking time and motion studies of each operation, they were able to report to us what could normally be expected, as a 60-*B* hour, on each job, and to indicate what we might expect on each job with the proper incentive for greater accomplishment provided.

"WITH the assistance of the regular analyses and records provided by our method of wage payment and incentive," says Mr. Massey, "I can sit at my desk and get a clearer picture of conditions in our four plants than would be possible if I spent my whole time in the plants on a tour of personal inspection and observation. They tell me accurately what is taking place in each department."

Engineers Do Not Install.

Here I wish to emphasize that the duties and responsibilities of these engineers end when they give us this basis of measurement. They establish no rates, fix no requirements of production, and assume no responsibility or authority in the application of the system. Their sole function is to provide us with the information based upon their studies, as indicated. It is then *our* function to determine the rate of payment and other factors.

When the engineers presented to us their analyses or the *B* value of each job, our next step was to establish a base rate of payment for that job, and with this duty, our work, as management, was begun. We determined this upon the basis of a production of 60 *B's* an hour. This basic rate was determined *by our management* for each particular class of work in accordance with the nature of that work, supply and demand, etc.

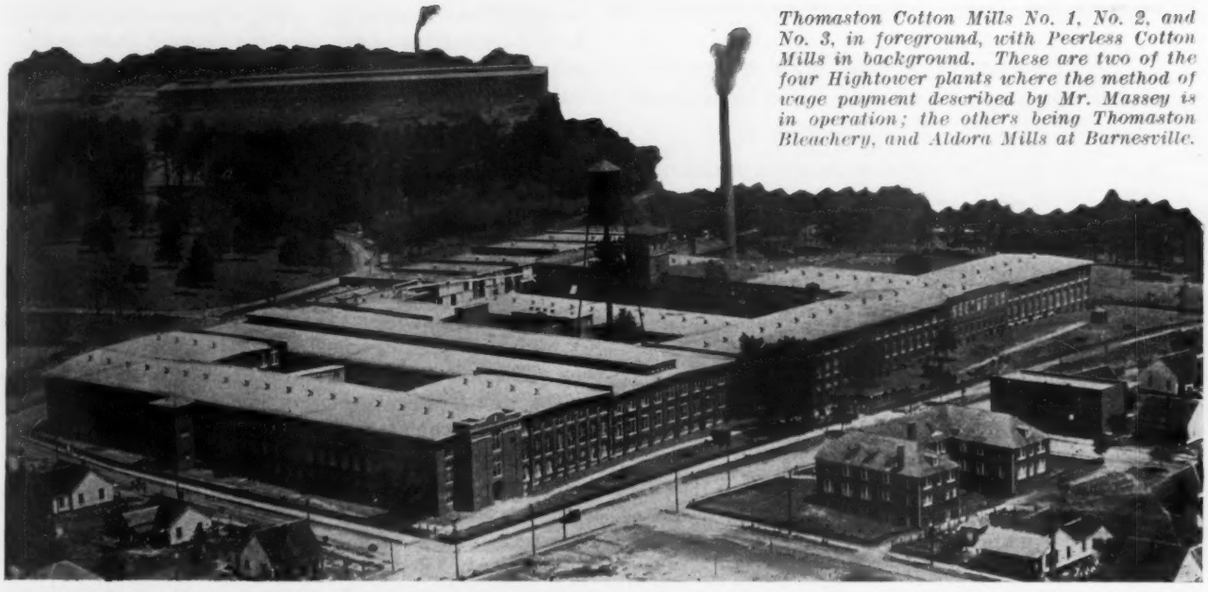
The engineers had shown us, conclusively, that on many of our jobs, the production had averaged from 40 to 50 *B's* an hour. This was no especial reflection upon the worker, but rather a result of conditions. Piece rates had been set up, and jobs assigned, with absolutely no basis of equitable determination of whether the rate, in proportion to the amount of work and accomplishment, was representative; or of whether the number of machines, or the duties, represented a fair day's work. I make this statement not as an admission of exceptionally irregular conditions in any plant, because I know that such a condition will be found in almost any mill without some such universal means of measuring the possibilities and requirements and restrictions of any of the jobs involved in the mill processes.

No "Magic Wand."

Having set the base rate on each operation, it was our next job to determine the attitude of our employees with reference to this method of wage payment. As previously stated, we applied the system gradually, conservatively and carefully, and in presenting the plan to our employees, recognizing its unusual nature, we pursued likewise a policy of conservatism. We offered them no magic wand by which they could "make more money." We explained to them that the studies had demonstrated to us that by the more complete utilization of their time, and a proper application of their efforts, they should be able to increase their earnings by producing more, and asked their cooperation. We showed them that with an increase in individual efficiency and production, the mill's unit cost would be decreased and their earnings proportionately increased.

And here I wish to give well-deserved credit to the attitude exhibited by the majority of our operatives with regard to the method. Obviously, there were difficulties—just as there would be with any new method, of whatever description—but as a whole we were able to satisfy our operatives that the plan held possibilities for them as well as for the mill, and I am glad to say, as the time has gone along, that we found, in instance after instance, our operatives eager for the application to reach their department—rather than an antagonistic attitude and a non-cooperative spirit.

We had been told by the engineers what could reasonably be expected of each job, but as soon as the application of the plan was made, we found different workers on the same kind of work accomplishing greatly differing production. This we felt could be corrected to a certain extent by arriving at, insofar as was practically possible, standard methods of performing the same duties and instructing the operatives according to those methods. I do not mean that we attempted to automatize any operation, nor to set up any arbitrary methods for achieving a given result. This would in fact destroy the fundamental object of the plan for rewarding according to individual merit and accomplishment. At the same time, however, there were many instances where different methods of instruction, habit, inclination, and a lack of knowledge of what was required and necessary had resulted in much waste of effort and time and energy by many operatives, to no purpose. We found, for instance, that on the operation of sewing up bales of



Thomaston Cotton Mills No. 1, No. 2, and No. 3, in foreground, with Peerless Cotton Mills in background. These are two of the four Hightower plants where the method of wage payment described by Mr. Massey is in operation; the others being Thomaston Bleachery, and Aldora Mills at Barnesville.

tire cord on cones, some of the operatives were wasting their energy, time and productive capacity by putting in more stitches than there could be any possible necessity for, and by instruction as to what was actually necessary in this respect, we were able to release some of the operatives' time which they could utilize, without the expenditure of any more time or physical effort, for productive purposes.

Mill Management Installed It.

Let me emphasize again that this is a function of the management and supervisory force of the mill, and not of the engineer who made the studies. I repeat this statement because visitors have told me that prior to learning first-hand of our method, their impression was that the engineers installed the system and applied it and dealt with our operatives. Such was not the case. As I have said, the sole purpose of the engineer was to determine *for us* the conditions that existed in our plants, as to the efficiency actually existing on each job and to advise us, upon the basis of their experience in measuring human effort, how much could reasonably be expected from each job; and then to provide us with a universal unit of measuring the accomplishment on any given job. Beyond that, and the operation of the clerical details of the system, the engineers' work does not go. From the very beginning of the application, the responsibility of the managerial and supervisory organization of the mill itself has remained in complete authority, and it has been their duty, and theirs alone, to install and apply and adapt the method in question to their respective elements of the mill's productive processes.

Thus far in describing the application I have dealt only with the direct or productive worker. By that I mean the card hand, the spinner, the twister hand, etc.—that class of workers whose efforts are devoted to the turning out of the product of the department in which he is located. As previously stated, however, the plan applies as well to the supervisory force, the indirect labor in each department, and even to the general indirect labor whose work is separate and distinct from any specific part of production itself, but whose efforts contribute to the efficiency of the plant as a whole. With a brief further reference to the direct or productive worker, I shall attempt to explain the application of the plan to the other classes of labor and to show how it ties everyone in to the incentive of increased production.

When the *B* value for any operation is established, the operative is guaranteed that this value will never be changed on that operation, except in the event of a change of method. He knows that, once that value is determined, it will remain fixed; and he knows that it represents a fair and equitable return for normal accomplishment on that job, or 60 *B's* of accomplishment per hour. Any accomplishment (or production) which he achieves in excess of that normal amount, by a more complete utilization of his time and energy, by eliminating waste effort, time and strain, are known as premium *B's*, and he is rewarded in direct proportion as he increases his accomplishment over and above that amount. He is thus given an incentive to produce more. He is guaranteed that as he produces more, his earnings will increase, but as he fails to measure up to normal, his earnings decrease.

Different from Regular Piece-Work.

I have been asked to differentiate between the accepted method of "piece-rates'" and the system which we have applied to our plants. Due to the absence of a common unit of measurement of human effort and energy, as well as the many influences which affect the setting of the rate, piece rates, as a general thing, can have the effect of retarding production rather than of increasing it. Certainly I know that too high a piece rate on any job will decrease the production, and, under average conditions, it is considerably more likely that too loose a rate will be established; and I do not believe that any practical mill man will deny that it is natural that with a rate that is too high, the tendency will be to retard a day's production rather than to increase it. This is especially significant when the piece rates, as is usually the case, are so flexible

"Our management is provided with a yardstick of measurement for each job, a basis upon which to expect a fair day's work from each operative; and the operative is given a definite incentive to produce more work, by an intelligent application of his efforts and a proper utilization of his time and energy, and the right to expect a fair day's pay for his efforts, and an assurance that the basis of his compensation will remain unchanged."

in adjustment, etc., and there is removed an incentive to increase production to an amount which would result in the paring of the rate to keep it in line with the rest of the scale.

Furthermore, under the piece rate system (and by that term I mean the original system with no common unit of measurement, for after all, our plan involves the element of piece production) each rate is set up separately, with no common denominator to gauge or measure it, in terms of human effort, with any other job, and I have never been able to see how such a procedure could result in an equitably distributed basis upon which to operate the mill's wage payment.

On the other hand, with the plan we have applied, if I have clearly explained the *B* as representing a fraction of a minute of work plus a fraction of a minute of rest, the reader undoubtedly recognizes that the foregoing objections are removed. The operative is guaranteed that on any given job, the *B* value for a given operation, will never be changed, and he knows further, that, if by the proper expenditure of effort and the proper application of that effort, he accomplishes more than the amount of production established as normal, he will be rewarded in direct proportion. Furthermore, in the case of a shut-down caused by a temporary absence of power supply, etc., he knows he is to be paid for the time he spends at his job during such an unavoidable interruption, at the base rate, until conditions permit him again to produce according to his individual application and effort.

Explains Use of Stop-Watch.

At this point also I wish to explain the use of the stop-watch, and its relation to the plan, because many of our visitors have come with a misunderstanding of this element of the plan. The stop-watch is used only in connection with determining, in the beginning, the *B*-value of any job, and for that work it is absolutely essential, for no other method has been developed for making these determinations. It eliminates the probability of human error on the part of the engineer in arriving at his figures. Beyond this purpose, it has no part in the application of the plan; it simply determines accurately the amount of effort, time and energy that is being expended. We carefully explain to the operatives under observation that they are not being "watched" or "checked up," that a record simply is being taken of their actions and movements, with a view to setting up a basis from which they will be able to better utilize their efforts and energy with a resultant increased production and increased wage.

Leaving temporarily the direct or productive worker, I will now discuss the application of the plan to the supervisory element of our organization—and, as representative of this class, shall refer to the overseer. While each direct worker's individual effectiveness determines his own wage, mill men know that the supervisor, or overseer, in his manner of supervising, planning, laying out work, etc., is a very important factor in the accomplishment of his department or room as a whole. Analysis sheets based upon the efficiency of the direct workers in an overseer's department show, regularly, the accomplishment of his department as a whole, and, working up from the base rate established for him, the overseer or other supervisory worker receives a premium determined by the efficiency of his department, in relation to the labor cost of same. This obviously gives him an incentive to anticipate delays and enforced idleness caused by an interruption in the flow of material, for example, to provide every condition, consistent with cost, conducive to higher efficiency on the part of his operatives. At the same time, the overseer is directly and personally interested in keeping up the efficiency of every productive worker, because each operative's *B*-hour affects the standing of the department as a whole.

Application to Indirect Labor.

The plan is in a similar manner extended to the non-productive workers, whose premium above the base rate is determined by the standing of their department. It is likewise applied to those indirect workers whose efforts are chargeable to no particular department, but relate to the plant as a whole, and their wages are affected directly by the efficiency of the mill. Thus they come more into importance, from their own standpoint, as an integral part of production. They realize that a delay or neglect on their part, in performing even some inconsequential task in itself, may retard or delay the productive capacity of the direct workers, upon whose efficiency their own compensation depends.

Since every operation in the mill is based upon the common denominator *B* in regard to its efficiency, it will now be seen that we are afforded a comparison between any two jobs, any two departments, or any two mills in our organization, regardless of local conditions. This naturally provides a universal incentive for every group, vieing with one another in a spirit of friendly rivalry.

The records provided by the plan are of course all-important. The standing of each operative in a department is listed on a posting sheet placed conspicuously in the department; this record shows also the efficiency of the department as a whole. Those operatives who fail to attain the normal of a 60-*B* hour, are posted in red ink, and, needless to say, it has become

a by-word in our plants to try to "keep out of the red." In a sense, these posting sheets tend to make the plan in a way self-operating;every worker in a department, whether direct or non-productive or supervisory, is interested no longer in only his own efficiency, but the efficiency of every other worker contributing to the product of that department, because that worker's efficiency affects the standing of the department.

Valuable Records are Furnished.

Of more direct value to management are the analysis records which are furnished to me and other executives regularly. These give us, readily, a picture of production conditions in each plant as well as in each department. That common yard-stick, the *B*, permits our making accurate comparisons, not only between the present standing of different departments, but between the position of any one department, person or other unit at the present time and a week, month, or year previously. I might say in passing that a most interesting phase of the plan has been the opportunity to study its progress weekly over the months of application, to see its increasing effect as it filtered gradually through the various departments.

The compilation and posting of these analyses and other records involves, of course, additional clerical labor, but this necessitated a comparatively small increase in this department, and the personnel of this department is composed of workers in our own organization.

Having endeavored to describe the plan generally, I will now point out some of the specific results as we have determined them. First, I can do no better than to emphasize my statement at the beginning of this description—that our management is provided with a yardstick of measurement for each job, a basis upon which *to expect a fair day's work from each operative;* and the operative is given a definite incentive to produce more work, by an intelligent application of his efforts and a proper utilization of his time and energy, and the right to expect *a fair day's pay for his efforts,* and an assurance that the basis of his compensation will remain unchanged.

No Hurry and Confusion.

We have had visitors who, hearing superficially of the plan as we have applied it, have come to Thomaston expecting to witness a scene of hurried confusion and complicated effort. In contradiction to this impression, after observing our plants in operation, they have voluntarily made the observation that no such condition exists, that our operatives are working without undue effort or enforced strain. At the same time, however, many have added that there is less evident the lost motion and idleness, caused by a lack of incentive, waiting for materials, supplies, repairs, etc., which existed before.

The Editor has asked if I would state, in terms of percentage of decreased cost and increased wages, the results of the plan. In answering, I prefer to be conservative, and can say definitely that our wage scale has been increased approximately 25 per cent, and our unit cost of production decreased materially. One significant feature of the reduction in cost has been that in the case of practically every saving, more than 50 per cent has gone *to the operative force.* Furthermore, when an operative exceeds a 60-*B* hour in efficiency, the mill unit cost is not affected, and beyond that point, the saving goes in its entirety to the operative force. A striking evidence of the satisfaction on the part of our operatives is the fact that our labor turn-over has been greatly decreased during the past two years.

We sincerely believe, from our study of and experience with such a plan, that its holds for the industry possibilities yet uncovered in its application. We consider it no magic wand nor universal panacea for our problems. Nor has its application been immediate. We started gradually, applying it first in one small department and progressed with it carefully, without long strides which an eagerness and impatience for results might have induced. Having so complex and unrelated a condition to work with, it required months in some cases to show results. We do believe that courage, fairness and confidence on the part of everyone concerned contributed immeasurably to the success of our application; and that without these influences, no system, plan or method of any kind can be applied, with success.

Practical Discussion Groups Organized for New England Mill Men.

THE National Association of Cotton Manufacturers has begun the conducting of a textile forum for the discussion of manufacturing problems in the mill for superintendents and overseers in the cotton mills of the northeastern section of the country. Group meetings will be held, with the superintendents in one group and overseers of carding, spinning, weaving, slashing and dressing, dyeing and bleaching, etc., in others. The first of these sessions will probably be held soon.

The basic idea of the forum is the fostering of a common interest in the industry, through the bringing together of the superintendents and overseers from various mills in closer contact, with an opportunity for informal discussion of mutual manufacturing problems. Stenographic records of the essential points of the discussions will be sent to those attending.

This forum will absorb the group meteings of New England superintendents and overseers initiated a few years ago by the *American Wool & Cotton Reporter,* it being felt that the work can be more adequately carried on under the auspices of the association.

New Carlyle Johnson Catalog.

Carlyle Johnson Machine Co., Manchester, Conn., have issued a loose-leaf clutch catalog, made up of several pages showing the various sizes and types of Johnson friction clutches; the remainder of the booklet being composed of loose-leaf pages representing reprints of the company's advertisements in various industries. The general catalog is put in showing these clutches, and showing a page of the application of such clutches in each of a dozen different large industrial fields. A catalog is also assembled for each industry, showing applications for the company's product to different machines and problems of that particular industry.

Interesting Program Plans *for* Atlantic City Meeting

Northern and Southern Manufacturers to Meet Jointly

ON May 24th and 25th, at the Hotel Traymore, in Atlantic City, the American Cotton Manufacturers Association will hold its thirty-third Annual Convention. Combined with this will be the third joint convention held with the National Association of Cotton Manufacturers.

These meetings are anticipated with a great deal of interest due to the fact of the common interest that now exists in all branches of the cotton textile industry, regardless of section or location.

It will be remembered that only two years ago such a convention was held, the success of which was so pronounced that it prompted the leaders of these two associations to have another joint session at this time.

Left, W. M. McLaurine, secretary-treasurer, American Cotton Manufacturers' Association; and, right, Russell T. Fisher, secretary, National Association of Cotton Manufacturers, who are handling the details of the coming joint meeting in Atlantic City.

On Friday morning, the 24th, each association will hold an individual session, at which the annual addresses of the presidents and the reports of the secretaries and treasurers will be given. In addition to this, in the American Association, an address will be made by J. E. Edgerton, President of the National Association of Manufacturers, on general industrial conditions, portraying some of the present problems and indicating how various industries are attempting to meet them. A. W. Palmer, of the Bureau of Standards, U. S. Department of Agriculture, will make an address on the methods used and the problems incurred in his work in the Bureau of Standards. Another speaker of national note will likely be included on this morning program.

The National Association of Cotton Manufacturers will hold a simultaneous session on Friday morning.

In the afternoon there will be a joint session of the two associations, at which time W. S. Thompson, a director of the Scripps Foundation for research in population problems, and Col. Nelson Burr Gaskill, a Washington attorney and former member of the Federal Trade Commission, will be two of the principal speakers. A third speaker will be secured.

"Tomorrow's Customers" will be the subject of Mr. Thompson's address. The Foundation, of which he is one of the directors, estimates that ten years hence the population of the United States will be 135,250,000 and that in the year 2000 it will total 185,600,000. The Foundation foresees a complete reorganization of the present retail distribution in the near future and it is expected that these subjects will form a part of Mr. Thompson's address.

"The American Can Decision" will be the topic of Mr. Gaskill's talk. Both he and Mr. Thompson will address the manufacturers in the joint meeting which will be held Friday afternoon, and the program committee is now making arrangements for one or two speakers for that session. President H. R. Fitzgerald of the American Association will preside.

In the evening there will be a joint banquet for both Associations and representatives of each are arranging the program.

Saturday morning, May 25th, the convention will end with the final executive meeting of the American Association, at which time Mr. Mangus W. Alexander, President of the National Industrial Conference Board, will be the chief speaker, using for his subject "Textile Economic Conditions." Immediately following his address will be reports from the various special and standing committees, and the election of officers for the ensuing year.

The program committee of the National Association of Cotton Manufacturers includes: Charles M. Holmes and J. E. Stanton, Jr., New Bedford; Nathan Durfee, Fall River; Samuel T. Hubbard, New York; Charles L. Gilliland and Harry W. Butterworth, Philadelphia.

Members of the program committee of the American Cotton Manufacturers Association are: H. R. Fitzgerald, Danville, Va., A. M. Dixon, Gastonia, N. C., B. E. Geer, Greenville, S. C., S. W. Cramer, Cramerton, N. C., W. D. Anderson, Macon, Ga., and A. W. McLellan, New Orleans, La.

SPINNING *and* Allied Subjects Discussed *at* Charlotte

Unweighted Middle Top Rolls, Cockled Yarn, Kinky Filling, and Other Topics Discussed in Southern Textile Association Meeting

THE SPINNING DIVISION of the Southern Textile Association met in Charlotte, N. C., at the Chamber of Commerce Building, on Friday, April 12th. There was a good attendance, and while the session was brief, a number of interesting points were developed in the discussion. There was no set program, the discussion ranging over a varied list of questions which had been submitted by various members.

Carl R. Harris, superintendent, Erwin Cotton Mills, Cooleemee, N. C., president of the Association, presided over the meeting as chairman of the Spinning Division, being assisted by Marshall Dilling, former president and ex-chairman of the carding division.

Carl R. Harris, President of Southern Textile Association, Conducted the Spinning Discussion at Charlotte.

The use of unweighted middle rolls, causes of cockled yarn, causes of sloughed-off filling, etc., were among the subjects covered in the discussion. The following paragraphs present a report of a major portion of the discussion. At certain stages of the meeting specific products were discussed, with the use of manufacturers' names, and in view of this, the officers instructed reporters to delete certain portions of the discussion because of this fact, and COTTON naturally accedes to these instructions.

Unweighted Top Middle Roll.

The first question asked for discussion referred to the use of the wooden unweighted middle roll in spinning, producing a longer draft, and inquired whether any changes or adjustments are necessary in changing to this type of roller arrangement.

W. P. Ennis, overseer, Chadwick-Hoskins Mill No. 4, Charlotte, N. C., was the first to report, stating that, "I have put this roll in on 45 frames, closing up the steel rollers, with the saddles reaching from front to back." He explained that the middle roll of wood, unweighted, does not retard under the influence of the longer fibers, and eliminates cockled yarn. He also declared that he gets a better breaking strength with the longer draft produced by this unweighted roll, due to the break draft between the front roll and back roll, and the fact that the fibers do not retard the middle roll to produce cockled yarn. In reply to a question from Mr. Harris, he said that he took out a 3,700-grain weighted roll and replaced it with a wooden roll weighing 1,200 grains.

Marshall Dilling, superintendent, A. M. Smyre Mfg. Co., Gastonia, N. C., said he had submitted the question, explaining that he has the roll installed in one of his mills and that it is giving entire satisfaction, with drafts between 14 and 16 on spinning, but that in the other all of his efforts to make the roll operate satisfactorily have failed. He explained that while the latter frames are located in another building, the mechanical conditions, humidity, etc., are practically the same except the cotton used on the frames where the roll will not work is 1¼-inch, while the stock used where the rolls are running satisfactorily is 1 3/16-inch. He said the distance between the back and middle rolls, center to center, is just about the regular space, running over 1¼-inch.

J. V. McCombs, superintendent, Randolph Mills, Franklinville, N. C., reported that he had run the unweighted roll on 1⅞-inch Sakellarides stock, using a 1 1/16-inch front roll closed, which was equivalent to a 1-inch roll opened somewhat. The work was 23s tire fabric yarn. In installing the light middle roll he increased the break draft one tooth. He said previously he had trouble with the roving running out the sides, and that, "on the 1⅞-inch stock, without the unweighted middle roll it would keep three fellows busy all day cutting laps off of the steel roll. I increased the breaking strength by several per cent."

Crow's Experience at Drayton.

Smith Crow, superintendent, Drayton Mills, Spartanburg, S. C., was asked to give his experience with the wooden unweighted roll. "We only have two frames on with the wooden top roll," said Mr. Crow, "however, our entire spinning is equipped with an unweighted aluminum top roll. We have made considerable experiments for the last few months on these two frames, and so far we are very much pleased with the experiments. We have made tests drafting all the way from 12 to 20, on numbers ranging from 40s to 110s. We have gotten very satisfactory results. We have made considerable changes. On our make of spinning it was necessary, to get the draft we wanted, to change some gears on the head end of the frame.

The Causes of Cockled Yarn.

Here are the causes of cockled yarn, as listed at the Spinning Discussion meeting in Charlotte last month:

1. Rolls set too close.
2. Uneven length of fiber in cotton.
3. Defective top rolls.
4. Clogged rolls.
5. Improper lubrication.
6. Stirrups rubbing against steel rolls.
7. Worn back and front saddles.
8. Slack belts.
9. Too much humidity.
10. Creased rolls from hard ends.
11. Hard rolls.
12. Variation in thickness of skins.

If you can add to this list any further causes of this trouble which you have found, the "How Other Men Manage" department of COTTON would welcome a letter from you discussing them and any of the above subjects, giving any methods or plans you use to prevent or eliminate them.

We had to change our drafting to give us a wide enough range, and we went back to the carding and cut out our jack frames in some cases, and made a considerably heavier roving, depending on the numbers and the drafting we wanted to test out.

"In going back to the card room and making a heavier roving, we put a little less twist in the roving. We have made most of our experiments on 1¼-inch cotton. Running a heavier roving required less twist and it makes it draw smoother and easier in the spinning. We have gotten very satisfactory results. However, our breaking strength remains about the same. We have made more tests drafting around 16 than anything else, and with this draft the breaking strength remains about the same as drafting 10 or 11." He asked his overseer of spinning, Mr. Waldron, to discuss the wooden roll further.

Has Aluminum Top Roll, Also.

"We are not expecting to increase the breaking strength," responded Mr. Waldron, "but on our finer numbers we did want to get away from cockled yarn. We didn't have very much, but we had some. By putting in a heavier roving with less twist, it helps us. We closed our rolls up to 1-inch on 1¼-inch cotton, and on the light wooden roll so far we haven't had any cockled yarn, drafting a little better than 16." Mr. Waldron emphasized that this information was based on several weeks' test of a few frames, and that he would not advise putting an entire room on the roll until thorough experiments had been made. Answering questions, he said that his aluminum unweighted roll weighs 1,550 grains, and his wooden roll weighs 1,050 grains, and that for the finer work, he would prefer the wooden roll on account of the fact that it is lighter, and nearer in proportion to the weight of the roving.

J. S. Lockman asked how many sides the spinners run, and Mr. Crow replied that they handle 16 to 20 sides, on fine numbers, doing all of their own cleaning. Mr. Ennis reported his numbers as 40s to 45s warp and 50s, 55s and 60s filling, and said that his spinners run 20 sides, where the unweighted wooden middle roll is used. Both Mr. Waldron and Mr. Ennis said they had made no change in the weighting of the remainder of the rolls in introducing the unweighted roll.

Mr. Dilling again explained that he had been unable to find why the roll would work in one mill and not in the other, under practically the same conditions throughout. In answer to a question, he said, however, that he had not tried running the shorter stock through the mill where the rolls would not work, or the longer stock in the mill where they were performing satisfactorily, in order to determine whether the 1/16-inch difference in the length of the staple could be a factor affecting the difference in performance of the roll in the two plants.

Variation in Size of Gears.

The chairman at this point asked the question, "Could there be any variation in numbers caused from the draft gears not being the same diameter, even though they have the same number of teeth?" There was a brief discussion on this, the consensus of opinion being that if two gears are cut with the same cutter, and are of the same pitch, that a difference in diameter of up to 1/16-inch would not affect the evenness of the work. Floyd Todd, of Gastonia, J. S. Lockman, Mr. McCombs and Mr. Dilling discussed this, it being brought out that in actual practice in the mill, where there is a difference in diameter, the shop will cut the teeth differently, making the mesh on one deeper or more shallow to conform to the teeth on the other; but practically everyone agreed that, with the same pitch, and cut on the same cutter, in mill practice a difference of 1/16-inch in diameter would not cause variation in the product of the machine. Mr. Fagan, of Gastonia, said he had had experience with different sized gears, and with a gear that is over-sized, a heavier product will be turned out. He said this is not so noticeable on the spinning, but it is much easier to detect on the speeders. "If the gear doesn't change the speed of the roll, it will not affect the variation in the yarn," commented Mr. Waldron.

Causes of Cockled Yarn.

"How many causes are there for cockled yarn?" was the next question from the chairman. Several members responded, and the chairman listed the causes given, in order, as follows:

1, rolls set too close; 2, uneven length of fiber in cotton; 3, defective top rolls; 4, clogged rolls; 5, improper lubrication; 6, stirrups rubbing against the steel rolls causing the rolls to lick; 7, worn back and front saddles; 8, slack belts; 9, too much humidity; 10, creased rolls from hard ends; 11, hard rolls; 12, variation in thickness of skins.

As to the remedies for these causes, the chairman pointed out that in practically every case the cure was self-evident, but asked for further discussion.

Mr. Dilling stated that, referring to the light middle roll, "where you can use it, it will eliminate your cockled yarn."

"One of the best things you can have is *a good cotton man,*" commented Mr. Hamrick, overseer of carding and spinning, Pacific Mills, Columbia, S. C., and another member added that to keep hard ends out of the spinning room would reduce cockled yarn materially.

Causes of Sloughed-Off Filling.

"What are the causes of sloughed off filling?" was Mr. Harris' next question. "Travelers too light, too slow a motion on the traverse," were among the causes suggested by C. W. Pettit, Greenwood Cotton Mills, Greenwood, S. C., and R. P. Barton, overseer of spinning, Lancaster Cotton Mills, Lancaster, S. C., added, "frames running too full, light travelers, and traverse going up too slow."

Another man reported that he had recently received 10,000 new filling quills, which were smooth for about 1½-inch from the end, and that he was bothered with sloughed-off filling until he dipped the ends of these quills in boiling hot water, to kill the slick finish on the end.

J. V. McCombs pointed out that if the cams wear on the bottom sloughed-off filling will result, and E. B. Brannan, overseer of spinning, Victory Manufacturing Co., Fayetteville, N. C., said the only way to correct this trouble is to put in new cams.

Peter Quinn, spinning expert of the Draper Corporation's southern office, declared that sloughed-off filling is caused by the rail dwelling while the front roll is delivering, and that lengthening the stroke might not stop it. He pointed out further that the type of quill used has a great deal to do with it, but still, if the bobbin is right and the traverse and other conditions are correct, the only way to stop the difficulty is to take the dwell out of the frame. "This will stop sloughed-off filling regardless of the stroke, provided the bobbin and other things are all right." Mr. Waldron agreed that the type of the quill does have something to do with it. He added that sometimes after yarn has been conditioned, even though it may be firmly wound on in spinning, it will slough off.

"Why is it that when the filling is running all right, we will not have this trouble for three or four days, and all at once we have sloughed-off filling, and then it gets all right again by itself, and why do we have more sloughed-off filling on Monday and Tuesday than at any other time?" asked J. S. Lockman, of Lockhart.

Mr. McCombs explained that a difference in the humidity condition caused the increase of sloughing-off during the first day or two of the week.

C. C. Briggman, superintendent, Lancaster Cotton Mills, Lancaster, S. C., was asked for his opinion, and said, "I think most of us know what causes it to slough off from a spinning standpoint, but I do think there are some things in the weave room that will cause it; too much power on the picker stick for one thing. We have not noticed any difference in sloughing off on Monday and Tuesday, but this is probably because we can get about all the humidity we want. There is a quill that will cause sloughed-off filling, which has an offset at the end, causing sloughing off on the last few strokes." He said that he has changed the type of quill used and reduced his trouble materially.

"Several years ago we had a great deal of trouble with sloughed-off filling," reported Mr. Jones, of Newberry, "and I took it upon myself to keep a record for two years. On looms using filling out of the same box, in a period of two years, one loom had fifteen places caused by sloughed-off filling to one, two and three on the others, and I reached the conclusion that a good deal of the sloughing-off was caused by the power in the weave room. The cams on the spinning frame can cause a good deal of it, but I think that some of it is done in the weave room."

"Go back home and run a 'snotty-nosed' bobbin, and then go down and take the power off of the loom, and run it, and see if it won't run it out," suggested Mr. McCombs.

Mr. Ennis reported that up until two years ago he had a great deal of trouble with sloughing-off, though he does not have it in an increased degree on Mondays. However, two years ago, he said, he lined up the frames, leveled the rails, put new Pitman rollers under the cams, took out the lost motion, run the traverse up slow and down fast, made the taper ¾-inch, got the right tension on the traveler, and speeded up the traverse from a 26 to a 49 lay gear, and eliminated his worries in this regard.

MARSHALL DILLING, past president of the Southern Textile Association, who assisted President Harris in conducting the discussion at the Charlotte meeting.

Peter Quinn pointed out here that a worn-out ring would contribute to trouble of this kind. Mr. McCombs said he had experienced a great deal more trouble with yarn with a low twist multiple, than with 3.75 or 3.85 times the square root, while Mr. Ennis said the trouble would show up with 3.50 times the square root.

At this point Mr. Dilling explained a method of varying the points of the cams, in order to give a lapping over effect on the build, to reduce sloughing-off, and several members concurred in this, one man pointing out that on a four-point cam he makes five picks on every other stroke and four alternating with it, grinding off about ⅛-inch, explaining that the grinding is done in the hollow part. Peter Quinn explained that the machinery manufacturers will now supply this type of cam if desired.

(*Continued on page* 809.)

Why *Individual* Fabric Costs?

Showing the Necessity of Knowing Just What Each Fabric Costs In Order to Determine What Cause the Loss and Which Bring in the Profits

By E. G. Field

Wm. H. James & Co., Atlanta.

"I WISH every mill executive would study this article carefully," remarked a mill president to whom it was shown in manuscript. He meant that it shows why "average" fabric cost means little, and that present conditions demand that a mill man, to make the right profit, should know what each individual fabric he is making costs him.

This article, short and easily digestible, proves that individual fabric cost has meant profii to at least one mill recently when resorting to "average" costs would have loaded their looms up with many unprofitable styles, simply because the profitable lines would have held the "average" up.

THE mill manager seeking profits for his stockholders is interested in costs as an effective aid in locating products to be manufactured at a profit. The experienced executive has learned that average costs, even when modified by set rules, are useless for this purpose. This is especially true when mills are offered prices leaving close profit margins.

When the final profit earned by an efficiently managed mill is extremely small, modern cost information is most essential. If part of the production is contributing good profits, then another part must be consuming those profits. At once the maanger is concerned with locating the profitable items for further development. He must also obtain profitable lines to replace the profit-losers.

Too often executives take recourse to averages. Observing that the averages remain somewhat constant, they feel that they do not need to know the proper costs of individual fabrics. They may, however, notice that profits have declined without much change in average costs. The fact that the average sales price declined and wiped out the profits may be temporarily accepted by the stockholders. Alert managers insist on knowing their costs in order to select the most profitable business.

As indicative of the range in costs, an illustration is taken from a gray goods mill making plain specialties. In approximately one year, they manufactured over 200 fabrics with a profit on each item. The following table shows the range in conversion costs, labor and mill expense, per pound:

Product		Conversion Cost		
Class	Fabrics	High	Low	Difference
Sheetings	108	$ .2025	.0800	.1225
Twills	37	.1737	.0925	.0812
Drills	25	.1579	.0949	.0630
Sateens	21	.1891	.1007	.0884
Miscellaneous	16	.1846	.0817	.1029
Total	207	$ .2025	.0800	.1225

This difference of 12¼ cents in conversion cost represents a range over 1½ times the lowest cost and is obviously greater than the average profit obtainable.

In order to locate this business done, the company quoted upon a large number of orders. Most of the quotations were on fabrics being made or formerly manufactured. In addition many estimates were prepared for fabrics they had never made. These estimates included over 200 items on which one or more costs were figured to examine the profit possibilities but no orders were accepted. These items for quotation only, and on which no business was taken, showed:

Conversion Cost		
High	$ .2331	368%
Low	.0633	100
Difference	$ .1698	268%
Fabrics	215	

The above figures are not taken from an extreme situation. Further examples can be given. The individual product costs figured by two other mills contain similar cost differences:

Mill	Product	Fabrics	Conversion Cost High	Low	Difference
"B"	(Cloth and Yarn)	98	$ .3166	.1022	.2144
"C"	(Yarns)	12	.1116	.0444	.0672

These few tabulations are representative of the condition to be found in many plants. The costs may range to a high that is *two* to *three* times the lowest. With such variation any quotation method based upon simple averages may quickly wipe out all the profits obtainable under today's marketing practice. The Cotton-Textile Institute, realizing the importance of individual fabric costs, in their Cost Outline presented an entire chapter "Essential to Assign Costs Accurately to Different Products."

Having determined the correct costs of individual fabrics, it is equally important to know the proper amount of profits that should be available. Each order must furnish its own definite profit. Profit by fabrics should not be a fixed amount per yard, per pound, etc. On some items a less profit per pound may result in the more earnings for stockholders. When to accept or reject bid prices becomes most important.

Adequate cost information is an essential for successful merchandising. Individual construction costs are a necessity because there is no correct way to adjust averaged figures from average production. Profits are the residual dollars between sales and costs. Through use of individual fabric costs, modern management knows the amount of profit to be contributed by each order received.

YOU MUST OBEY

When Experience

Is Your Teacher

By Oliver G. Murphy, Superintendent

Shawmut Mill, Shawmut, Alabama.

Mr. Murphy again offers some practical food for thought. The first Comeling article appeared in the February 1929 issue of COTTON.

This is the second informal conversation which Mr. Murphy has reported between himself and his Comeling—which means; according to Webster, "a newcomer; immigrant." The article contains much practical, every-day philosophy for every mill man and his own "Comelings" in the game.

A FEW evenings ago I was reading *Whither Mankind,* and had reached the chapter entitled "Science," written by Bertrand Russell. Just as I finished the statement, "Meanwhile, we must expect at any rate for the next hundred years, that each generation will be congenitally stupider than its predecessor," my half-grown boy slipped into the Library, and sat down near me. I laid the book down, and stared at my Comeling.

"Did I disturb you, Dad?"

"No, son."

"Well, what's wrong?"

"Son, a writer here—touching the book—by process of reasoning declares that from birth you are more stupid than I."

"He is just all off, Dad! Ha! Ha!"

"You young rascal, you think that's a wise crack, but let me tell you what I think about the matter."

"Yes, sir! I would like to know."

To put it flatly, a Father that does not produce a finer man in every respect than he, is as a Father, a failure. But I might add that the Father needs cooperation on the part of the son. For a son should try and benefit by the known experiences that have come to his Father. Too often, the Comeling does not realize the value of utilizing the experiences of the old settler.

It is a known fact that every man living today is the product of his ancestors. Sometimes a man will say that as the last of his line, he is the accumulated results of all of them, and thereby furnishes an excuse for failure.

I have a wholesome respect for these influences, from the past, but this phase of the question can wait for a later discussion. For more important to you now, is the need in life of *experience,* and that is not inherited.

Comeling, each man is the result to date of the manner in which he has used all the experiences that have come to him, either in his own life, or from the lives of others. The wise man profits by them. The foolish refuses to be benefited and fails to advance in the ability to achieve.

Experience is one of the best assets that a man can have in business. But usually it takes from him a toll of passing years, to gain this aid in doing his work successfully, and thereby being more valuable to his organization and those around him.

Come with me, Comeling, and listen to the teaching of experience: It does not pay to be stubborn. I do not believe any man ever achieved the success of which he was capable—I will go further, I do not believe any man achieved success in a large way—who was just plain stubborn.

My advice to you, when faced by a problem, is to face it squarely. Be open minded, listen to suggestions, listen to advice, get what you can from your own experience and the experiences of others, try and remove every personal desire from your thinking, so as not in any way to becloud the question, peer into the future as far as possible, look at the problem from every side, being sure you do not overlook a phase that could be studied. Then firmly, use your own judgment and act. Make your own decision. If you make a mistake; tough luck, it's your error, but you have done your best. "Angels can do no more." But if you repeat your mistake, then it becomes a crime against your success.

Every mistake is a stop, look and listen warning along the road of life, where each mile brings to view new scenes, from which we can gather wisdom to help us, as we advance farther along the way. The How and Why of each mistake calls for serious study.

Comeling, it must not be repeated if the unpleasantness of it is not to come again. And the repeat will carry with it more sting, for you have failed to use the wisdom life has tried to give you. Never allow a mistake to go by without finding some way to reduce the chances of its happening again. No man can build up a good system in his organization who refuses to accept this fact.

This brings me to a very important thought: In a cotton mill or any productive field, a mistake that annoys a customer must not be repeated if you expect to hold his business any length of time.

"An Old Customer is a Jewel."

You will find, Comeling, that one of the most pleasant relationships in business is an old customer who has confidence in you, and in whom you have confidence.

Train yourself to consider him as a jewel above price, and you will be surprised how quickly your men will be thinking the same way and it will be easier to get their cooperation in getting the quality and deliveries he desires.

In the business world today changes are taking place almost over night and one must adjust himself to these changes as rapidly as they take place. In fact, in this age of tight competition, the man who gets the best results reads the changes before they happen and is already prepared when they arrive.

Comeling, I wish for you to get, early in life, a vision that some men seem never to get. It is this: A customer, in making a new requirement, does not do so for plain cussidness, but because he feels that conditions in his business makes the demand. He may feel that his product needs improving to meet some new demand made on his product by *his* customer, or to meet some competitive product. And further remember as he is paying for the yarn, cloth, or whatever product you may be selling him, in all fairness he has the right to make the requirements he knows are necessary. If he should be so unwise as to stick to old methods, old requirements, his business would die and a customer be lost.

With this being a fact, still, I am sorry to say, there are men today in the mills over the country, who fight change in any form and the whole organization under them reacts to their attitude and soon a very unhealthy condition exists.

Understand me clearly, I do not advise change unless conditions demand, but if they do and you fail to adjust, it is only a matter of time how long you will last. For the world will pass on and leave you to your fate. It's hard but true, the world is interested only in the man who makes it respect him, by the exercising of his abilities to achieve success.

From my own observation it seems to me that usually — I would almost say every time — when a man gets in trouble in the plant it's when for any cause he eases up in his vigilance.

The easing up in vigilance on the part of the one in authority will always cause an easing up all along the line.

"Dad, that's the third time this evening you have stated that if the man in authority does a certain thing the people in his employ will follow suit. You seem to blame him with everything, that seems to me a little too hard on the Boss."

Well, Comeling, that's exactly what I want you to get next to. And I tell you it holds true from the section men through to the chief executive. There is an old saying: "Like priest, like people."

When you get into the business world, from the first moment you are placed in authority, no matter how insignificant the position may be, you must begin to put your spirit into those over whom you have authority, therefore, it is imperative that you have the right vision of your responsibilities to those for whom you work, those who work for you, and do not forget the Customer's rights.

Getting up I walked over and stood with my back to the fire. The boy, thinking the conference over, said goodnight and started toward the door.

Wait a minute, Son.

He returned and stood facing me.

By the way you were telling me the other day that a certain boy at school was a Bully. You will find them in business. But it is a poor way to go through life. A loud mouth, cussing, overbearing man is a poor asset to any organization. I believe his day is passing very fast, he does not seem to fit in the picture today.

I am sorry it is a fact, but we still have a large number of cussers with us yet.

Let me tell you something. It's wrong for a man to cuss the people in his employ. In the first place, it's unfair; in the second place, he should have more respect for his people. If an employee is so worthless as to need cussing, get him out of the organization; he is not fit to have around. But do not cuss him.

I Close with a Sermon.

I knew the head of a department to be discharged for calling his people, behind their backs, names that cannot be mentioned in the presence of ladies, and I agree with the man who did the firing.

Comeling, my advice to you is, do not take up swearing. It is a useless habit, you will gain nothing, and there is nothing uplifting about it. The truth is, the effects are the opposite.

In the Bible—the book that tells us how to live in this world so as to get the most real satisfaction out of living—we find: "Thou shall not take the name of the Lord thy God in vain, for the Lord will not hold him guiltless, that taketh His name in vain."

Laying my hand on his shoulder as we stood eye to eye—he is growing rapidly these days—I said, pardon the sermonette, Lad. But I have already told you of the stern necessity of keeping your body clean, for your own sake and others still unborn. But I believe that a clean mouth is also of grave importance, for its effect upon you and those who may come into the field of your influence.

With a smile and, I thank you Dad, he turned and walked away. As I watched him go up the stairs I thought: "Watch your step, Dad, *watch your step!*"

DYEING VAT COLORS In Package Circulating Machines

By Harold Schroeder

Article Five

THIS article resumes Mr. Schroeder's serial discussion of package machine dyeing, covering specifically the use of vat colors, which present some especially trying problems on this class of work.

Next month we depart again from the series to present another article on raw stock dyeing, by a mill superintendent. Following the previous discussion on this subject in the April issue, the article next month will outline in general the details of the raw stock dyeing operation. Then will come another of Mr. Schroeder's package dyeing discussions.

VAT COLORS, with their pre-eminent fastness to all the operations of bleaching and finishing and with unusual resistance, considered as a class, to wind and weather, are certainly growing in popularity among the consumers of dyed yarn. Whether the change from ordinary colors to these fast non-strippable colors is being greeted with pleasure by the dyers who are faced with the task of applying them evenly on the fiber and producing matches as exact with vat colors as with the previous direct color standbys, is a matter of opinion. Certainly no dyer, handling vat colors on cotton yarns, subsequently to be wet finished, can ask for any better equipment than is provided by the modern pressure type circulating machine.

The term vat colors of course covers a wide range of dyes, some exceptionally fast to wind and weather,

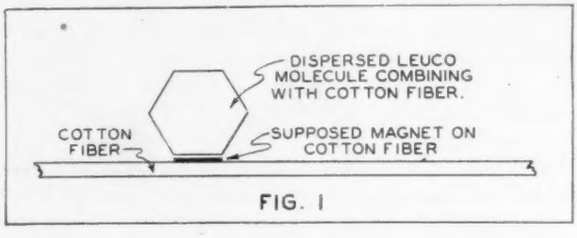


FIG. 1

sunshine and storm and some not so especially fast. It is not allowable to say that because a color is a vat dye that it therefore is fast to anything and everything. A greenish yellow dye might be exceptionally fast to bleaching yet at the same time be really fugitive to light; and, for example, in the violet range a dyer might find one violet dye very fast to washing but not so good to light and another dye, almost the same in shade which while of good fastness to light, was really loose to washing.

Speaking generally, however, vat dyes as a class are faster in every respect than any other type or class of color.

The situation is different when you start to compare the poorest of the vat colors with the very best of the direct colors. Primuline when carefully dyed and then properly treated with chlorine is very much faster to bleaching than a well known and widely used vat yellow. Some of the especially fast to light direct colors are definitely faster to light than some of the fast vat colors. It therefore behooves a dyer to watch his step when choosing vat colors or the results will not be as good as they should be.

The vat colors referred to in this article are intended to include that chosen group which long experience on the part of the industry has definitely established as being the very best obtainable. Such colors are sold under various trade names which are indicative of the fastness to be expected. The great majority of these colors come from one parent, a chemical known as anthraquinone.

In the old days, not so long ago at that either, the results of dyeing vat colors in circulating machines were not topics for polite conversation. The dyeings were often loaded with excess dyestuff sometimes so much so that the operators of the rewinding machines would be well nigh choked by the flying particles of

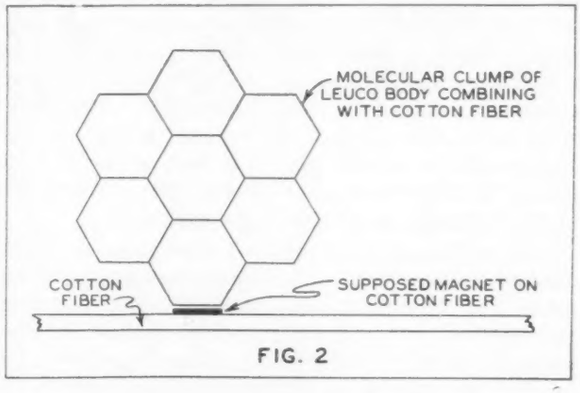
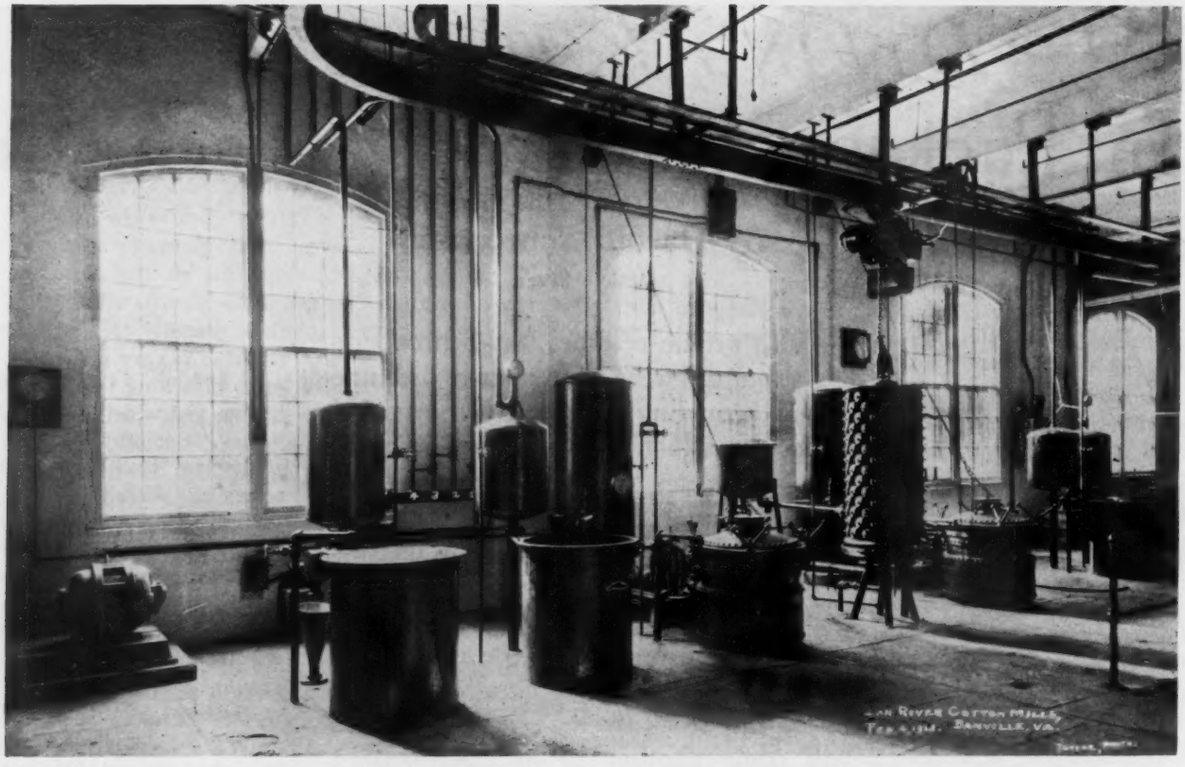


FIG. 2

dusty dye: there was no possible guarantee of level dyeing and when any meek customer ventured to suggest that the matches he was being supplied with were really not matches at all but only approximations of the desired shade, and not very good approximations at that, he was told to go back in the corner and sit down, since it was impossible to obtain good matches with vat colors.



Thies tube dyeing equipment at Riverside & Dan River Cotton Mills, Danville, Va. Capacity, 3,000 pounds daily, Indanthrene colors. Note electric hoist and trolley rail used for loading and unloading carriers of yarn before and after dyeing.

Those days are gone never to return and we find the by-now educated customer not only requesting but demanding that his vat shades be matched accurately, and more and more we find dyers able to meet the demands.

Better Dyes Have Helped.

Much of the improvement is due to better dyes; dyers of even a few years' experience will remember that in those days there were two classes of vat dyes, one was labelled vat dyes and the other was called sand-free. The first kind was liable to contain anything from just mud to brass filings, while the powders were mysterious mixtures whose strength rarely if ever came up to what was clamed for them. Nowadays, much to the dyer's benefit, most every vat color on the open market is at least soluble, in fact, so far as yarn dyeing is concerned, some of the vat powders are easier to handle than some of the pastes.

Not so long ago, well within the memory of man, a dyer who was handed certain shades to dye with vat colors was faced with a real problem. Realizing that the resulting dyeing was supposed to be fast and also level, it was up to him, in those days, to choose between a dye that would dye very level but was not especially fast, or else use a color which would be fast but was almost impossible to dye level.

This situation is changing and it is to the credit of the American dye manufacturers that they are introducing vat colors of good fastness and at the same time good leveling properties, thereby making the dyer's work very much easier.

Vat dyers may probably resent bitterly being termed physical chemists, some dyers may, in fact never know that such a type of chemist even exists. What is more unfortunate is that physical chemistry, as represented by our colleges, has never heard of dyers, nevertheless any dyer who has successfully worked out processes for dyeing vat colors may if he is so inclined and it means anything to him consider that he has solved a problem in physical chemistry. There is probably no other branch of cotton dyeing which is more closely tied in with intricate theory and in which practice would be more benefited by a study of molecular construction than the dyeing of vat colors in circulating machines.

Of course, dyers did not arrive at the happy state of having tamed vat colors by reading a book on chemistry, not even one in two volumes, or by looking wise at a desk. Vat dyeing in the average dyehouse was learned slowly and painfully by many mistakes and costly losses. It was solved by dyers who were backed by employers who believed in them, it was solved by the willingness and ability of customers to use the less than perfect product, since they could get no better. Finally out of the welter of trial and error, painful experiment, the various formulae were pruned down till the dyeings they produced really did begin to look like something for which no apology was needed.

These dyers had at all this expense solved a problem that could have been solved by physical chemistry. This is not to be taken as saying that there is today one single living physical chemist who could from the peaceful cloisters of his laboratory produce by calcu-

(*Continued on page* 815.)

Designing *of* Drapery Fabrics

By Osbert Hughes

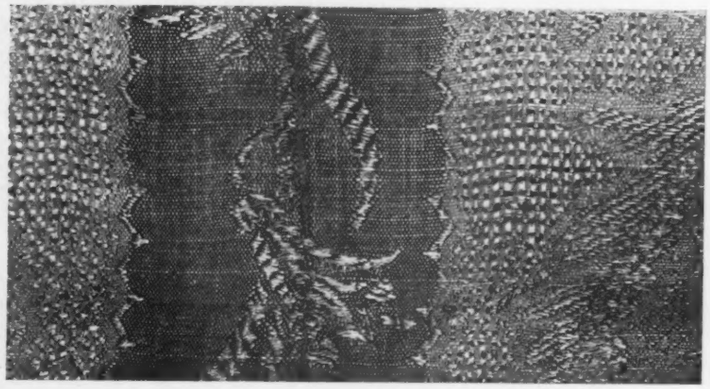


Fig. 1.

THE style of drapery fabrics in use at the present time are usually of a light-weight construction, being very often designed as a reversible fabric. Rayon is quite extensively used as filling, often on a mercerized warp in the better grades. The old-fashioned heavy, dust-catching hangings once so popular, are no longer used to any great extent. Color is a big factor in the styling of draperies, although elaborate designs, both dobby and Jacquard, are frequently employed to further ornament these fabrics. Striped warps are very popular, both with figures enclosed by the stripes, and designs running all-over, irrespective of the stripes.

One simple but very popular type of drapery is illustrated at Fig. 1. This pattern is woven 40 inches wide, with a 6-inch stripe colored gray alternating with a 2½ inch black stripe. The warp is 40s/2 cotton, the filling 150 denier rayon, and the construction 72 x 48. The two colors of warp stripes are very effectively separated by a zig-zag filling float running the whole length of the pattern. Plain weave is used as the ground weave, and the filling floats forming the figures are bound with 8 shaft satin and various twills and fancy effects. The mock-leno weave shown at Fig. 2 is used to ornament the ground of the wide stripe. A Jacquard loom is required to produce this pattern, but a great many draperies of this style are made on dobby looms. This particular warp could be very effectively made up on a dobby by weaving the wide stripe plain weave or the mock-leno effect, retaining the zig-zag effect, and using a diamond effect such as Fig. 3 on the black stripe. By using a skip harness-draft, which of course should be kept as simple as possible, these effects may readily be obtained with a dobby of sixteen to twenty harness capacity. Cord ends may be introduced between stripes if desired. The warp may be floated if desired to give another effect in the figure unless the construction is so light that the warp ends would become distorted. A satin weave will usually be found best for the binding of a warp float used in this manner.

On a fabric of good weight, a neat reversible pattern may be obtained by using equal amounts of warp and filling floats, to balance each other, in the figure, on a plain weave ground. Thus, the warp float on the face of the goods becomes the filling float on the back, and vice versa. Small Jacquard figures on a geometric base look especially well when developed in this manner. Another effective use is the combining of both effects for shading the leaves in floral designs, the petals of the flowers being mingled or alternating warp and filling effect. When painting out a design for this reversible fabric, the designer must always visualize the appearance of the back as well as that of the face, so as to avoid a one-sided effect in the goods. With competent card-stampers it will be unnecessary to paint in the ground plain weave of these designs, but it is best to paint in the figure effects on the "tabby cord". The filling float may be indicated in, say, red, and the warp float on the opposite tabby, in yellow. The red is bound with black or white, and the yellow with red. Both bindings should be on their respective tabby. The card cutting directions are as follows:

Cut:—Paper tabby, (odd keys on odd-numbered

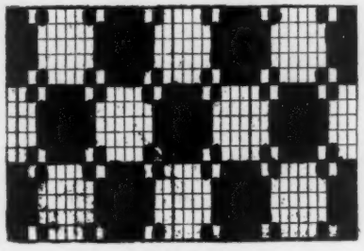


FIG. 2

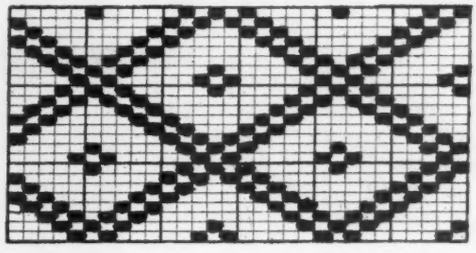


FIG. 3

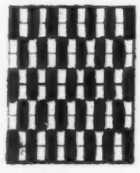


FIG. 4

lines, even keys on even lines). Black or white, and yellow. Omit red.

A more elaborate type of this plain weave fabric is made by using two shuttles of different colored filling, run pick-and-pick. These shuttles may be both of cotton or rayon, or one of rayon and one cotton. The ground is the repp weave shown at Fig. 4. This fabric is reversible, in that where one filling appears on the face, the other floats on the back. A warp float used on one side appears as a mixture of both colors on the

Fig. 6.

other. A design for this fabric is painted out as follows:

The point paper is laid out to cut two cards, one for each shuttle, from each line of the paper. One filling effect is painted red, the other yellow, and the warp float, or filling mixture, in blue. The ground is plain weave painted blue. This, in the cloth, gives the ground weave shown at Fig. 4, each warp end rising over two picks and under two picks. The red is bound with yellow, the yellow with red, and the blue with white, all on the tabby cord. Various twill and satin weaves, and fancy effects, may be used as binders. The card cutting directions are as follows:

1st card. Red shuttle. Cut yellow and blue.

2nd card. Yellow shuttle. Cut red and blue. The white and paper being omitted on both cards.

It is not essential to use the repp weave shown as ground. If desired, the regular plain weave may be obtained by leaving the ground as blank paper. The remainder of the design is painted in as before, with the exception that the blue should be bound with black. The cards are then cut as follows:

1st card. Red shuttle. Cut yellow and blue; paper tabby on odd-numbered keys.

Second card. Yellow shuttle. Cut red and blue; paper tabby on even-numbered keys. The black being omitted on both cards.

When binding the filling effects of this fabric, consideration need only be given to the filling floats, as the warp is taken care of by the weave structure in these places. This permits many varied fancy effects and shaped bindings to be used. However, the blue, or warp float, must be bound in both warp and filling way, and care should be taken to avoid having long stringy floats in these places on the figure.

Regular satin damask is greatly favored at the present time as a drapery fabric. This is being made in all constructions ranging from 84x36 to 150x72, 30s/2 to 40s/2 being chiefly used in the warp and 150 denier rayon as filling. On solid-color warps, black, navy blue, taupe, and mulberry are popular colors, while multi-color stripes are often used as well. Both point and straight ties of various widths are used. 5-shaft and 8-shaft satin are the usual weaves employed, depending on the quality of the goods. One satin may be used as ground, with both satins introduced in the figure, which may be further enriched by the introduction of various twills, fancy weaves, and shading effects. The ground and figure satin weaves should run in opposite directions. The ground satin may be indicated in red, or point paper may be obtained on which various satins are printed. The figures should be indicated in red, or the same color as that in which the ground satin is painted. The binding weaves should be in white or black. Care should be taken to lock the weaves whenever possible, as shown in Fig. 5, if necessary by breaking the regular run of the ground weave. This will give a much cleaner edge to the figures in the cloth.

The operation of card-stamping may be greatly simplified by keeping the binders on the tabby cord wherever possible, so that the cutter will use the odd keys on odd numbered cards and even keys on even cards. This cannot be done with some weaves such as

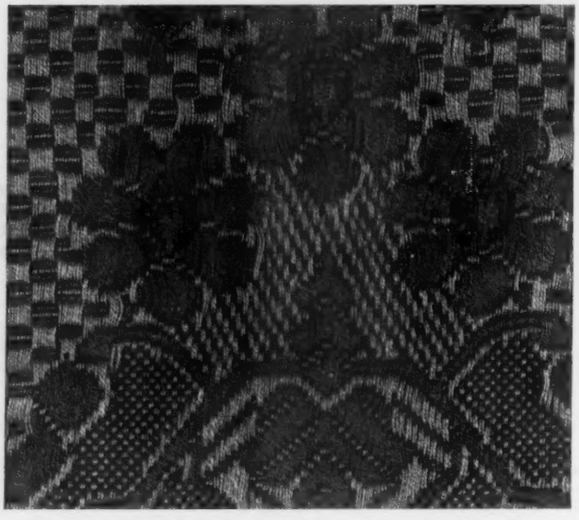


Fig. 7.

the 5-shaft satin and various shading effects, but should be done as much as possible. The card-cutting directions for satin damask are:

Cut:—paper and black or white. Omit red.

A sample of satin damask is shown at Fig. 6.

One form of working up satin damask that has a very good appearance, is obtained by using a regular satin ground and figure. Then the figures are given about ¼-inch outline of filling, floated as long as is consistent with the construction of the cloth. This filling edging is separated from the remainder of the figure by a few dots of plain weave. The high-lights

of the figure may be outlined in the same manner. Allowance for this outline should be made while making the sketch, to obtain the best results.

A fabric still in use as a drapery, although not as extensively as formerly, is illustrated at Fig. 7. This has a low number of picks, with heavy filling, thus forming a repp in the ground when woven as plain weave. The sample shows a variation of repp as ground. The figure is formed by the warp floating, one end on the face and the other on the back. Thus this fabric is perfectly reversible when a solid-color warp is used. On a two-color warp, (which is laid in end-and-end), the figure shows in one color on one side and the opposite color the other side of the cloth. The design is painted on one-half the number of hooks used in a repeat of the pattern, and the point-paper calculations made acocrdingly. A section of a design for this type of fabric is shown at Fig. 8. The figure is painted in red, and bound with black or white. Care should be taken to avoid long floats in the figures, with the warp ends. This fabric is self-binding as regards the filling. The card cutting directions are as follows:

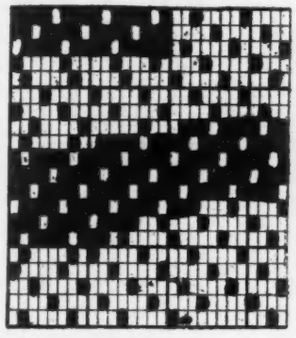


FIG. 5

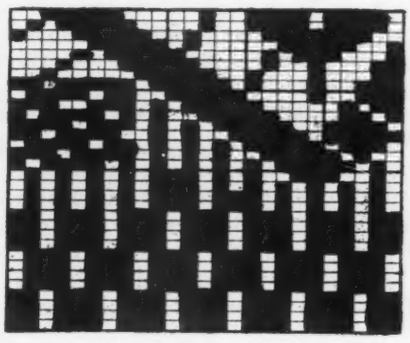


FIG. 8

Cutting Directions.

Cut:—Red on odd keys. Black, or white, and paper on even keys, or vice versa if desired, the result being the same in either case. If a two-color warp is used the cards are cut in the same manner. This, however, would show the figure in one color only on each side. If desired to use both colors of warp in the figure on each side of the cloth, the one warp is painted in red, as before, and the other left in blank paper and bound with red in the same manner that the red is bound with black or white. A heavier repp ground may be obtained by using each warp end over and under two picks instead of one. The very low number of picks frequently used for this fabric, sometimes as few as ten or twelve per inch, make it necessary to use great care in inserting the binders, as too long floats will spoil the whole effect of the figures, which should be kept as clean-cut as possible.

This fabric may also be made on a dobby loom, where it is usually made on a striped warp in bright colors. The weave structure is the same, the dobby pattern being on a fancy draw. One style of design frequently used consists of alternating colored stripes of repp weave and the dobby fancy weave, often separated by warp-float stripes in much brighter colors. This fabric is often made for couch covers, etc., as well as for drapery use.

It should always be borne in mind, when making up sketches for drapery patterns, the use to which the fabric will be put. Thus the pattern, when the hanging is in place, will meet the eye at a totally different angle to the pattern on upholstery goods, bedspreads, etc. This is one reason why stripes always look well in drapery goods. Unless a small geometric, all-over figure is used, it will be found best to sketch a Jacquard figure so as to show a very definite growth upward, so that the eye will follow the lines of the hanging and not be diverted in other directions. The most pleasing pattern, and, therefore the best sellers, are obtained in this manner. This applies especially to those patterns that feature floral effects. Attempts have been made to introduce the highly imaginative "Art Moderne" or modernistic type of motif into drapery and allied fabrics. Many fabrics imported from France show this influence. While these patterns may look well enough in cretonnes and printed fabrics, they are not so well adapted to the requirements of woven designs. From the purely decorative standpoint, they are not, in this writer's opinion, to be compared with the floral and geometric designs that are in more general use. It is extremely probable that the "Art Moderne" rage will prove to be only a passing fad, contributing very little of permanent value to the designer's art. However, the up-to-date designer should familiarize himself with these patterns, so as to be able to meet any demand that may be made on him for this class of work.

Catalog on Trahern Rotary Pumps.

George D. Roper Corporation, Rockford, Ill., have issued a new catalog covering their Trahern rotary pumps, known as Catalog No. 54. The booklet describes the complete line of Trahern rotary gear pumps for hand or power use, for many different applications, and, in addition contains engineering information regarding pumps and their operation, horsepower requirement tables, rules, etc., to aid in the selection of the proper type. Curves for capacity on horsepower performance, etc., etc., are contained and the booklet as a whole contains much information of this character of practical value.

Alexander Brothers Issue Booklet.

Alexander Brothers, Inc., Philadelphia, Pa., have just published a new booklet on Hydraulic Packings and Pump Cups, Form No. A 49. Copies may be secured upon request, it is stated.

CURRENT TOPICS

Cotton Manufactures in 1927

THE detailed cotton goods report of the census taken by the United States Department of Commerce in 1928 of operations in 1927 show interesting but not startling changes during the two years following 1925. The number of establishments fell off 1.4 per cent, indicating a tendency towards larger units of operation. This is supported by the fact that average number of wage earners engaged in the industry increased from 445,184 in 1925 to 467,596 in 1927, an advance of five per cent. At the same time the total of wages paid increased 13.3 per cent., or from $353,882,870 to $380,909,543. Consumption of power increased in almost the same extent as the number of wage earners. Figures covering the cost of fuel and power were collected for the first time, and the size of these should stop speculative asservations in uninformed quarters that certain major shifts in the industry owe in much part to this factor.

The entire cost of fuel and power in 1928 was $58,904,096, being only about 1/17th of all operating costs other than for labor. Cost of materials and power dropped from $1,077,152,614 in 1925 to $871,591,901 in 1927, the change owing no doubt to the collapse of cotton prices in the fall of the last year. The same may account in most part for increase in the value added to products by manufacture, this being from $637,215,173 in 1925 to $695,808,711 in 1927—a 9.2 per cent jump, which was made more significant by a fall in total value of products from $1,714,367,787 to $1,567,400,612, or 8.6 per cent.

The last census indicates that the sectional shift, long underway, continues. The number of establishments in cotton growing states increased from 809 to 834, while those reported for New England States dropped from 332 to 302, and those for other States from 225 to 211.

In 1927 60.2 per cent of the wage earners in the industry worked in southern mills, the proportion advancing more than five points. New England's proportion declined from 37 to 33.3 per cent and that of other states from 7.5 to 6.5 per cent. Southern mills accounted for 57.5 per cent of the output of cotton goods, in terms of value, in 1927.

Goods covered by the foregoing figures do not include knit goods and cotton small wares. Of the last the value of products in 1927 was $64,819,967, a decrease of 13.2 per cent as compared with the output in 1925. Most of the mills are in the Northeast. There was a net loss of 10 in the number of establishments.

Course in Technical Writing at Clemson.

CLEMSON COLLEGE, Clemson College, S. C., is now offering a new course in technical writing, especially adapted for students in chemistry, dyeing, and other branches of textile work. It will be given under the direction of Professor Charles E. Mullin. This course, open to junior and senior students in chemistry and textile chemistry and dyeing, as well as others who have completed the other necessary subjects, is the result of the demand in the industry for men able to express opinions, results of tests, etc., in writing. The ability to write concisely, clearly, and to the point is of constantly growing importance in all branches of industry today, and the school feels that training along this line is often necessary to obtain and hold many Government and other desirable positions.

Maybe Hoover Can Do It

IT is fortunate that President Hoover has expanded his promise, made in the last campaign, anent an inquiry as to prohibition enforcement, into an investigation under his auspices, of all phases of administration of law in this law-ridden land.

Leaders of the American bar and bench, including even the present Chief Justice of the United States, have used as bluntly denunciatory terms as the most reckless laymen could employ in commenting on what is probably the country's greatest shortcoming, its denials and miscarriages of that justice which is the very bedrock of the Anglo-Saxon concept of society.

Laws pile up in the form of both statutes and court declarations until they have become a jungle of confusion. Courts are multiplied but bring no relief from the expanding intricacies of litigation. Increase in crime no doubt owes most to the inadequacies of the country's over-elaborated machinery of trial.

Many able lawyers and judges have given the subject much honest and intelligent thought. Commissions named by their associations have investigated and made reports. But nothing is done. Little of account is ever done by the legal profession to improve conditions affecting the administration of laws. Contention is that this is profession's life, its reason for being. Lawyers in agreement on anything of importance relating to the law is something that is almost beyond the possible.

Hence few reforms as to the law and its administration have come from lawyers or the legal profession. The great changes, like the one achieved in France by Napoleon, were brought about by laymen who were free from the sway of technicalities and over-reverence for precedent.

President Hoover is a layman as to the law, a member of a profession that cares not for precedent not based provably in Nature's laws. His commission of inquiry will have the help of legal specialists, which is proper, but it will be a sorry commission, and its work will not get very far, unless it applies to the problem a vision not within the scope of the professional.

The President can see that such is done, and he may be able thus to bring about the beginnings of a reform that would do much to improve civilization in the United States and the world's respect for this country.

Maybe he can do this by approaching the problem with the natural disregard of the engineer for precedent.

? TWO PERTINENT QUESTIONS ?

Can *YOU* Answer Them

1. Why are Americans importing from France sheer cotton fabrics and laces made of our exported

ARIZONA PIMA COTTON

2. Why are many American manufacturers importing inferior staple Egyptian Sakel, when they can supply the popular demand for Parisian quality, by using this same

ARIZONA PIMA COTTON

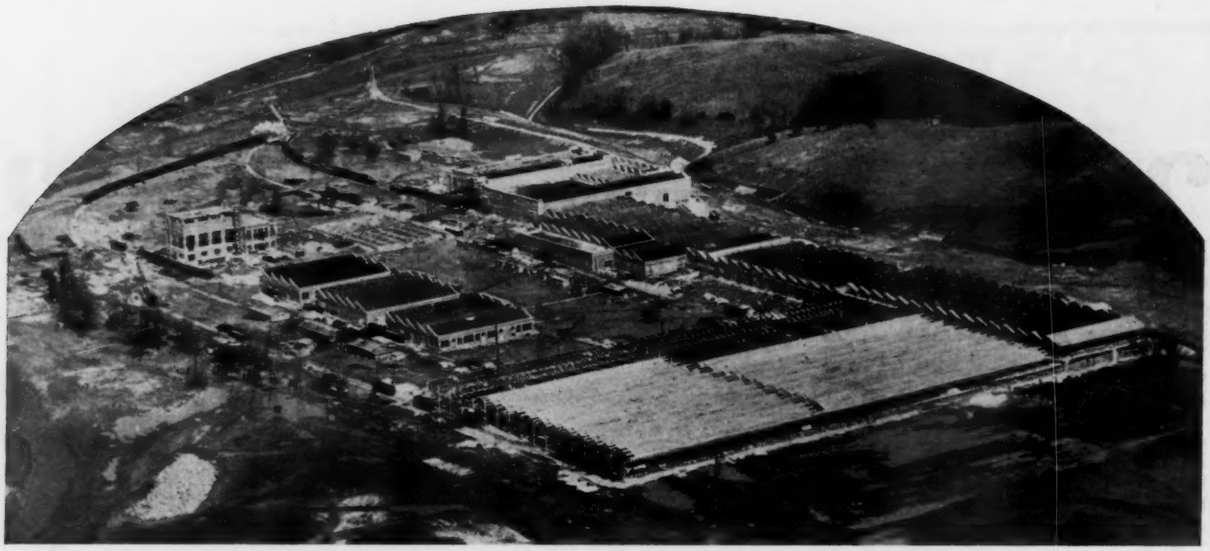
* * *

Superior in quality, Pima Cotton, although available to American manufacturers, is exported to France, from where in the form of beautiful clothes and intricate laces it is brought home by American tourists and discriminating importers.

Without obligations, let us give you further details and show you popular goods that are produced with its use.

E. A. SHAW & CO. INC.

BOSTON, MASS. *Exporters and Domestic Shippers Pima Cotton* TEMPE, ARIZ.



AMERICAN ENKA CORPORATION PLANT AT ASHEVILLE.

This photograph shows the rayon plant of the American Enka Corporation, at Asheville, N. C., which is rapidly nearing completion. The plant consists of four main units. The main structure will house the chemical, spinning, washing and drying, twisting and finishing departments. It will be in the shape of an L with one leg 1100 feet long and the other 1500 feet long, with an average width of 400 feet. A second building, three-story, 150x450 feet, will be used for storage and preparing of chemicals. Workshops and stores, etc., are located in a separate building 150x600 feet. There is also a large power house and turbine room. The plant will cost $10,000,000, and the capacity production will be 30,000 pounds of rayon per day. Rayon will be produced by the viscose process, from spruce pulp. H. K. Ferguson Co., Cleveland, Ohio, are the engineers and architects in the erection of this plant.

The Shipping Skies Begin to Clear

THE Gordian knot of government ownership as to shipping probably was broken when the Shipping Board got rid of the United States Lines, for long the outstanding unit in the Government's shipping lay out. The lines, together with the American Merchant Lines, go to a firm of investment bankers on terms which mean that the Government will long retain a senior partner's interest in them. But ownership and management will be in all appearance wholly private.

For the first time the Shipping Board seems to be really determined to get the Government out of the shipping business as fully as possible and as quickly as practicable. This is the case despite the fact that a between-the-line aim of the Jones-White Shipping Act of last year was the bringing about of permanent government ownership. The contrary development is aided, however, by that act, which at the same time is causing the Government to assume what amounts to a senior partnership relation to almost the entire American merchant marine. This is bad, but not so bad as outright government ownership.

The last of the Government's passenger lines brought a little more than $16,000,000, not much more than has been spent and lost on the Leviathan alone. The greater part of the purchase price is covered by notes extending through a long period. The purchasers plan to build two new big liner vessels of the Leviathan type. And for this the Government will loan the private owners about $50,000,000 on very easy terms as to interest and repayment.

This is Government aid with a vengeance—but a definite turning away from Government ownership may be worth it.

Mercerizers Adopt "Durene" as Trademark

THE Durene Association of America has been formed by several large processors of mercerized yarn, members of the Mercerizers' Association of America, all of whom have adopted the trade-mark "Durene" for their product. This trade-mark will be promoted vigorously, it is understood, by educational and merchandising work, and it is understood to be the intention to make it familiar to the consuming public.

Members of the Durene Association are: The Aberfoyle Manufacturing Co., Standard-Coosa-Thatcher Co., American Yarn & Processing Co., Dixie Mercerizing Co., Clarence L. Meyers, Inc., and Spinners Processing Co. J. S. Verlenden, president of the Standard-Coosa-Thatcher Co., is president of the new association. The new trade-mark has been adopted by the Associated Knit Underwear Manufacturers of America, and will be promoted by that association in its cooperative merchandising-advertising campaign.

Summer Course in Textiles at Clemson

A SUMMER course in cotton grading and various departments of textile work will be conducted at Clemson College, Clemson College, S. C. The courses will begin June 11 and continue for two, four or six weeks, depending on the course. Competent teachers with mill experience will be in charge, and any person with mill experience is eligible for admission.

The course in cotton grading will be conducted by the College in cooperation with the cotton division of the U. S. Department of Agriculture, which will have one of its cotton specialists on hand. Several thou-

Changing styles demand flexibility in equipment

Saco-Lowell-Roth Method of Spinning

IS your mill geared to take business as it comes today? Rapidly changing styles demand quicker and quicker deliveries at lower and lower costs.

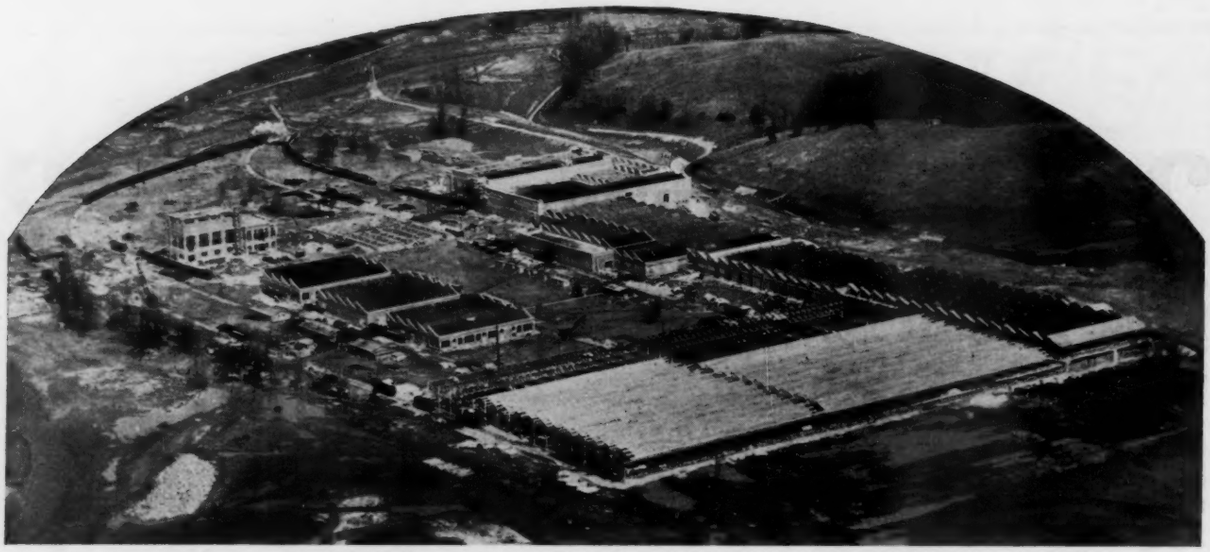
The leaders in the textile industry are ordering and reordering Saco-Lowell-Roth Spinning as standard equipment to meet this demand. Practically three-quarters of our present orders for spinning are *repeat orders* on Long Draft. Reasons: stronger yarn, lower spinning costs, saving of floor space, and *larger range of numbers from same roving.*

You need this flexibility in production.
Send for full data.

SACO-LOWELL
MANUFACTURERS OF TEXTILE MACHINERY

147 Milk Street, BOSTON, MASS.

CHARLOTTE, N. C. GREENVILLE, S. C. ATLANTA, GA.



AMERICAN ENKA CORPORATION PLANT AT ASHEVILLE.

This photograph shows the rayon plant of the American Enka Corporation, at Asheville, N. C., which is rapidly nearing completion. The plant consists of four main units. The main structure will house the chemical, spinning, washing and drying, twisting and finishing departments. It will be in the shape of an L with one leg 1100 feet long and the other 1500 feet long, with an average width of 400 feet. A second building, three-story, 150x450 feet, will be used for storage and preparing of chemicals. Workshops and stores, etc., are located in a separate building 150x600 feet. There is also a large power house and turbine room. The plant will cost $10,000,000, and the capacity production will be 30,000 pounds of rayon per day. Rayon will be produced by the viscose process, from spruce pulp. H. K. Ferguson Co., Cleveland, Ohio, are the engineers and architects in the erection of this plant.

The Shipping Skies Begin to Clear

THE Gordian knot of government ownership as to shipping probably was broken when the Shipping Board got rid of the United States Lines, for long the outstanding unit in the Government's shipping lay out. The lines, together with the American Merchant Lines, go to a firm of investment bankers on terms which mean that the Government will long retain a senior partner's interest in them. But ownership and management will be in all appearance wholly private.

For the first time the Shipping Board seems to be really determined to get the Government out of the shipping business as fully as possible and as quickly as practicable. This is the case despite the fact that a between-the-line aim of the Jones-White Shipping Act of last year was the bringing about of permanent government ownership. The contrary development is aided, however, by that act, which at the same time is causing the Government to assume what amounts to a senior partnership relation to almost the entire American merchant marine. This is bad, but not so bad as outright government ownership.

The last of the Government's passenger lines brought a little more than $16,000,000, not much more than has been spent and lost on the Leviathan alone. The greater part of the purchase price is covered by notes extending through a long period. The purchasers plan to build two new big liner vessels of the Leviathan type. And for this the Government will loan the private owners about $50,000,000 on very easy terms as to interest and repayment.

This is Government aid with a vengeance—but a definite turning away from Government ownership may be worth it.

Mercerizers Adopt "Durene" as Trademark

THE Durene Association of America has been formed by several large processors of mercerized yarn, members of the Mercerizers' Association of America, all of whom have adopted the trade-mark "Durene" for their product. This trade-mark will be promoted vigorously, it is understood, by educational and merchandising work, and it is understood to be the intention to make it familiar to the consuming public.

Members of the Durene Association are: The Aberfoyle Manufacturing Co., Standard-Coosa-Thatcher Co., American Yarn & Processing Co., Dixie Mercerizing Co., Clarence L. Meyers, Inc., and Spinners Processing Co. J. S. Verlenden, president of the Standard-Coosa-Thatcher Co., is president of the new association. The new trade-mark has been adopted by the Associated Knit Underwear Manufacturers of America, and will be promoted by that association in its cooperative merchandising-advertising campaign.

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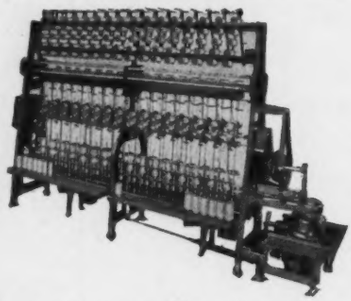
sand samples, representing the various grades, staples, and characters of cotton, will be demonstrated.

Courses will also be offered in designing, weaving, loom fixing, carding and spinning, textile chemistry and dyeing, and the teaching of textile subjects in night schools. The fee of each course is $5.00, while for $15.00 a person may take as many of these subjects as he can schedule. Room and board will be provided at $1.00 per day.

Those interested should address W. H. Washington, registrar, Clemson College, S. C., for full information.

Fletcher-Scranton Duplex Doubler and Twister.

THE accompanying illustration shows the Fletcher-Scranton Duplex doubling and twisting machine, manufactured by Fletcher Works, Inc., Glenwood Ave. and Second St., Philadelphia, Pa., which some time ago took over the rayon and silk throwing business of the Scranton Silk Machine Co. This machine was on exhibition at the Knitting Arts Exhibition in Philadelphia.



The machine is designed to double and twist as many as twelve threads in one operation. It is equipped with a quick acting stop motion, which stops the particular spindle when the thread breaks, patented double feed rolls for insuring positive and uniform twist, and an improved vertical motor drive of the Lennix type. The standard machine is built as follows: 100 spindles on frame for 6- and 8-thread doubling; and 86 spindles on frame for 10- and 12-thread doubling.

STATEMENT

of the ownership, management, circulation, etc., required by the act of Congress of August 24, 1912 of COTTON, published monthly at Dalton, Ga., for April 1st, 1929.

State of Georgia, County of Fulton.

Before me, a Notary Public, in and for the State and oCunty aforesaid, personally appeared W. J. Rooke, who, having been duly sworn according to law, deposes and says that he is the Business Manager of COTTON, and that the following is to the best of his knowledge and belief, a true statement for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are: Publisher, W. R. C. Smith Publishing Co., Atlanta, Ga.; Editor, R. W. Philip, Atlanta, Ga.; Business Manager, W. J. Rooke, Atlanta, Ga.

2. That the owners are: W. R. C. Smith Atlanta, Ga.; W. S. Cushion, Cleveland, Ohio; O. A. Sharpless, Atlanta, Ga.; J. C. Martin, Atlanta, Ga.; H. H. Kelley, Willoughby, Ohio; W. J. Rooke, Atlanta, Ga.; T. W. McAllister, Atlanta, Ga.; P. D. Hammett, Chicago, Ill.; L. F. Gordon, Atlanta, Ga.; E. W. O'Brien, Atlanta, Ga.

3. That the known bondholders, mortgagees and other security holders, owning or holding 1 per cent or more of total amount of bonds, mortgages, or any other security holders are: None.

4. That the two paragraphs next above giving the names of the owners, stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholders or security holder appear upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting is given; also that the said two paragraphs containing statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stock holders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bonafide owner, and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds or other securities than as so stated by him. W. J. ROOKE, Bus. Mgr.

Sworn to and subscribed before me this 1st day of April, 1929.

E. L. PHILPOT, Notary Public.

My commission expires March 5, 1931.

Horsecreek Valley Mills Purchased by Loring Firm

THE United Merchants and Manufacturing, Inc., of New York City, have purchased the mills of W. H. Langley & Co. located in the Horsecreek Valley section of South Carolina. These include the Aiken Mills at Bath; the Seminole Mills at Clearwater, and the Langley Mills, at Langley, S. C. George E. Spofford, formerly president of these concerns, has resigned and has accepted a position in Maine.

According to report, the new owners are considering the establishment of a finishing plant at Clearwater, S. C., to handle the products of these mills, or the conversion of the mill at Clearwater for that purpose. It is rumored that this purchase represents the nucleus of proposed extended acquisitions by the company in the southern section of the country.

What the Southern Mills are Doing

CONNECTICUT Mills Co., which operate a tire fabric plant at Danielson, Conn., have sold their original holdings in Danielson, Conn., and this is reported to indicate plans for increasing equipment at Decatur, probably another mill similar to the existing plant.

Definite announcement has been made that the Goodyear Tire & Rubber Company will erect a new mill of 50,000 spindles at Rockmart, Ga., for the manufacture of tire cord material. The company at present is enlarging their tire cord plant at Cedartown, Ga., and both this and the new plant proposed for Rockmart will furnish material to the tire plant recently established at Gadsden, Ala., by this company. Robert & Company, Atlanta, Ga., are the engineers.

Echota Cotton Mills, Calhoun, Ga., have completed extensive additions, as well as the installation of a complete sewerage system in the village.

Chatelaine Rayon & Textile Corp., Rome, Ga., has been formed to erect and equip a weaving plant to manufacture dress goods materials, dress linings, etc. In addition to the manufacturing units a water filter and sewerage plant, as well as a village for employees, will be constructed.

Operations have started in the mill just completed by the Alabama Braid Corporation, Gadsden, Ala., where braid, etc., will be manufactured.

The Lindale division of Pepperell Mfg. Co., Lindale, Ga. are erecting a two-story building, 200 x 104 feet, to be used for finishing operations.

Hillside Cotton Mills, LaGrange, Ga., have placed order for oil spraying equipment for spraying cotton in process. The equipment will be furnished by the Borne, Scrymser Co.

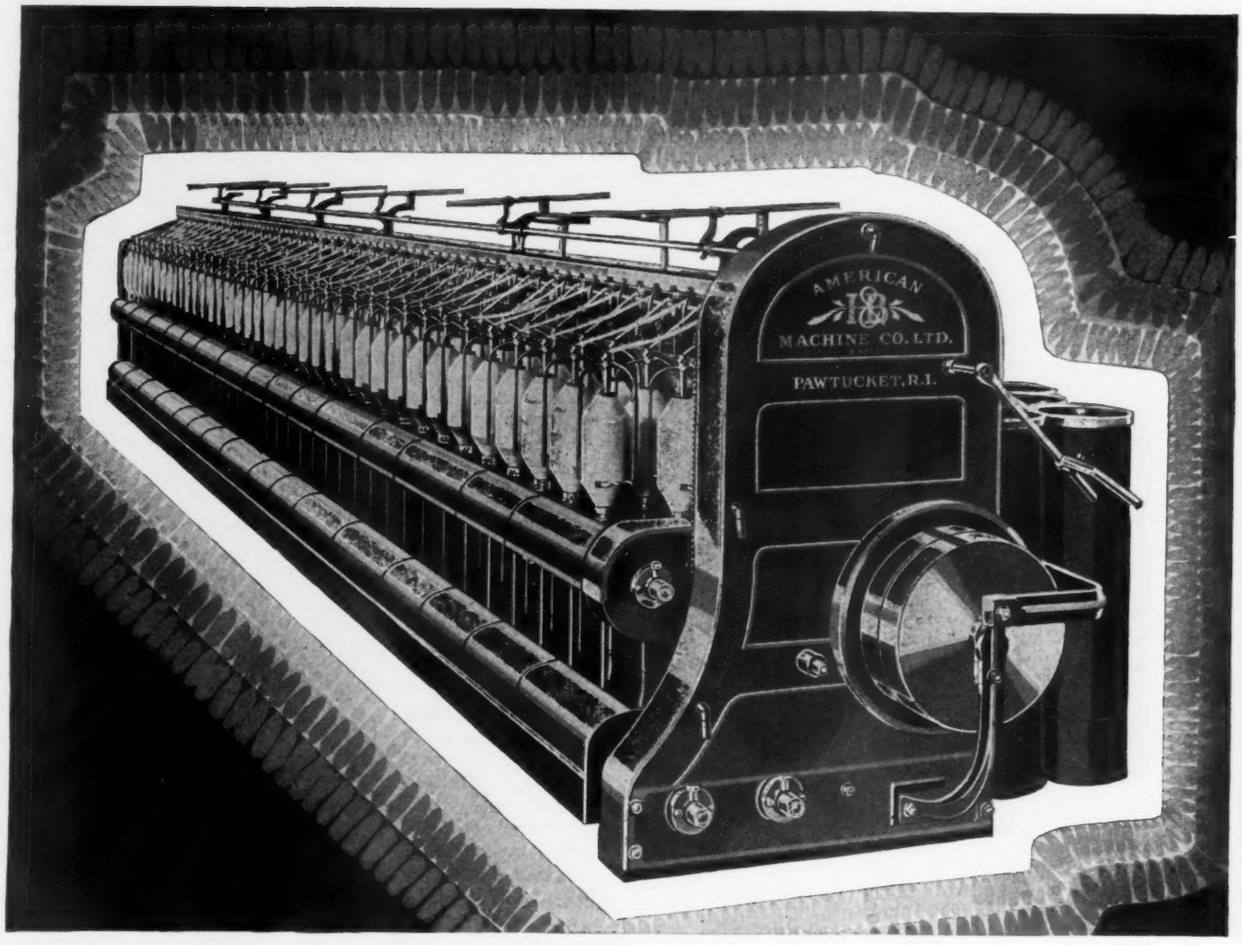
Manchester Cotton Mills, Manchester, Ga., recently placed an order for 555 SKF improved ball-bearing hangers, which are now being installed. This shipment represented a carload of hangers, probably the largest individual shipment of this equipment made to a southern textile mill within recent years. These hangers are now being installed.

Duchess, Inc., Charlotte, N. C., has been incorporated by Alfred Jepson and Harry Baum, of Charlotte, and others, for the manufacture of fancy goods specialties. The authorized stock totals $25,000.

Dilling Cotton Mills, Kings Mountain, N. C., are erecting an addition, two-story, 75 x 112 feet. New equipment including warpers, slashers, and looms for silk weaving will be installed; and it is understood 48 looms will be added later. Ten new cottages are being added in the mill village.

A one-story addition, 75 x 130 feet, is being made to the plant of the North Carolina Finishing Co., Yadkin, N. C. J. E. Sirrine & Company, Greenville, S. C., are the engineers.

Gastonia Weaving Co., Gastonia, N. C., have purchased 33 looms from the Narrow Fabric Co., Reading, Pa., and



H & B IMPROVED SLUBBING, INTERMEDIATE ROVING AND JACK FRAMES

Uniform
Production
Longer
Life

Case-Hardened Bobbin- and Spindle-Driving Shafts
Improved Method of Fastening Long Collars
Automatic Panel-Locking Arrangement
Recessed, Self-Lubricating Spindles
Patent Shipper for Cone Belt
Bearings Inlaid with Brass
Full-Bobbin Stop Motion
Rack Winding Device

Our Bulletin, explaining these features in detail, will be sent upon request.

H & B AMERICAN MACHINE CO.

PAWTUCKET, R. I.

Southern Office: 814 and 816 Atlanta Trust Co. Bldg., Atlanta, Ga.

BUILDERS OF COTTON PREPARATORY AND SPINNING MACHINERY

will install them in the Gastonia plant.

Collins-Aikman, with plush manufacturing plant at Bakersville, near Roxboro, N. C., have plans for additions which will increase the floor space of the mill to a total of 60,000 square feet.

Charles Mill Company has been formed to operate the Dora Textile Mills, Red Springs, N. C., which were recently taken over by the Dover interests of Shelby, N. C. Charles Roberts is in charge.

Waldo Mills, Enfield, N. C., have been incorporated, with an authorized capital stock of $150,000. J. W. Whitaker, S. W. Dickens, and R. E. Shervette are among those interested.

Anderson Mills, Inc., Lincolnton, N. C., will resume operations, it is announced by L. H. Moose, manager, who recently acquired the management of this property.

D. E. Rhyne, of Lincolnton, N. C., has purchased the Henry River Mfg. Co., Henry River, N. C.

George W. Kane has been awarded the contract for the erection of an addition to the Greenville Cotton Mills, Greenville, N. C., which will be 80 x 110 feet, and which will house twisters, spoolers and warping equipment.

Kendall Mills are erecting an addition to their plant at Camden, S. C. The addition will be of brick and tile construction, two-story, 75 x 75 feet. Lockwood, Greene, Engineers, Charlotte, N. C., are the engineers on this work.

Union-Buffalo Mills, Union, S. C., of which W. S. Nicholson is president, have purchased the Nuckasee Mfg. Co., of Greenville, S. C., manufacturers of underwear. It is understood that F. W. Symmes, former owner, will continue at the Nuckasee plant as manager.

Calhoun Mills, Calhoun Falls, S. C., have begun construction of a new office building.

The site secured by the Rock Hill Printing & Finishing Co., Rock Hill, S. C., is on Laurel Street, and comprises 12½ acres.

A portion of the Dyersburg Cotton Products Co., Dyersburg, Tenn., is in operation. The first unit includes 20,000 spindles and several hundred knitting machines. W. J. Harris is superintendent and vice-president.

Trenton Cotton Mills, Trenton, Tenn., is enlarging the plant to 9,900 spindles and overhauling equipment, and is also erecting a number of new homes at the village.

Contract for the addition to the Shelbyville Cotton Mills, Shelbyville, Tenn., has been awarded. The addition will be a weave shed, 150x300 feet, one and two stories high. J. E. Sirrine & Company are the engineers.

Fine Goods Mills, Inc., have been organized by James McDowell, president, and associates, to erect a mill at New Braunfels, Texas, for the manufacture of cotton, silk, mohair and woolen goods. A site of 12 acres has been acquired, and plans call for a weaving mill, 396x200 feet, equipped with 12,610 spindles and 232 looms, and for a silk mill 290 x 85 feet. It is also reported that the company will establish a wool-scouring plant.

Trumbull Vanderpoel Purchased by Cutler-Hammer, Inc.

Cutler-Hammer, Inc., Milwaukee, Wis., have announced the acquisition of the business of the Trumbull Vanderpoel Electric Manufacturing Co., Bantam, Conn., which will be operated as a subsidiary under its present name. This purchase adds a complete line of meter service and safety switches to the present Cutler-Hammer line of motor control, wiring devices and allied electrical items.

This company recently issued the second edition of "Modern Valve Control Practice," describing the C-H Automatic Valve Control System. The book contains much valuable information with reference to the application of motor-driven valves, explaining in detail the construction and operating principle of the C-H Automatic Valve Control System, including a new unit for small valves. An interesting feature discussed in the book is the operation of all valves throughout the plant by means of push-buttons from a single centralized control board. Copies of the book may be secured from Cutler-Hammer, Inc., 109 12th St., Milwaukee, Wis.

Organization of the Fairforest Finishing Co. is Completed

ORGANIZATION of the Fairforest Finishing Company, which will erect a bleachery and finishing plant on a site about six miles from Spartanburg, S. C., is announced. M. R. Reeves, of Reeves Brothers, New York City, has been named president, with J. M. Reeves as vice-president. H. Arthur Ligon, of Spartanburg, S. C., will be treasurer, and C. M. Lindsay, of Spartanburg, secretary. W. P. Ligon, of Spartanburg, is a member of the board of directors.

COTTON COMMENT

By H. & B. Beer--

New Orleans, April 6th, 1929.

THE market was more or less under pressure during the iod since our last review of March 16th. Compared with said date spot and contract values show a decline of nearly $3.50 per bale.

Contributing to the decline was the strained credit situation in Wall Street, a less urgent demand for spots in the South, unfavorable Manchester trade advices, private estimates as to the indicated increase in this year's cotton acreage, ranging from 1.9 per cent to 4.7 per cent, the disposition to consider the government's boll weevil survival report as rather disappointing, and more favorable weather of late in the interior to permit of better progress in preparing for the next cotton crop.

The Census final ginning returns for this season were close to the government's estimate of last December when a yield of 14,373,000 bales of 500 pounds gross weight was predicted. Final ginnings, in bales of 500 pounds gross weight, were 14,450,007 bales.

CENSUS REPORT

Linters not included—	This Season	Last Season
Ginned, counting round as half bales	14,269,313	12,783,112
Round bales included	672,859	550,277
American-Egyptian	28,310	24,223
Remaining to be ginned, included	71,869	22,447
Average gross weight of bales, pounds	506.3	506.8
Equivalent 500 lb. bales gross weight	14,450,007	12,956,043

OTHER STATISTICS

April 5— Bales	This Season	Last Season
In sight since August 1st (marketed)	14,316,768	12,770,660
Exports from U. S. since August 1st	6,933,813	6,011,338
World spinners takings since August 1st	12,146,000	11,564,000
World's visible supply of American today	4,518,787	4,656,426
Of other kinds	2,323,000	1,789,000
Of all kinds	6,841,787	6,445,426

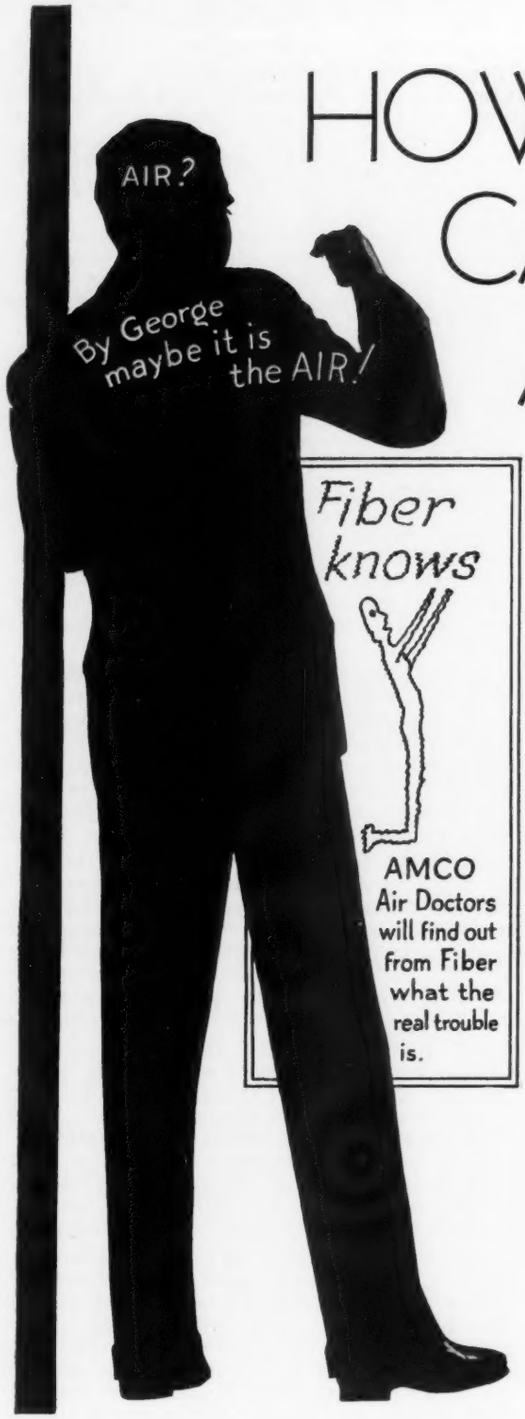
Since exports from the U. S. to April 5th were 922,475 bales larger than to same date last season, when total exports for the whole of last season were 7,830,408 bales, exports this season are now running on a basis for the whole season of 8,752,883 bales.

Spinners takings of American cotton show an appreciable increase over last year, also, since mills of the world have taken thus far 12,146,000 bales against 11,564,000 to even date last season an increase of 582,000, and since takings for the whole of last season, linters included, totaled 15,279,000 bales, takings at present are running on a basis of 15,861,000 bales for the whole of this season, with the possibility of the basis expanding in the future.

The Garside Bureau says: "It would not be surprising if the cotton trade ended this season with a world stock of only 4,200,000 to 4,300,000 bales against 5,121,000 last season, a five-year average of about 4,900,00 and a ten year average of 5,600,000."

The Garside figures, as to world stocks at the close of this season, do not include linters, and if they are realized, the world's carry-over of American cotton at the close of

(*Continued on page* 765.)



HOW CAN A MAN KNOW?

THE man was losing $192 a week. He didn't know it. The same trouble in a large mill would have cost him $1200 a week.

The man only knew he was having trouble. But who isn't always having trouble?

The man was *mechanically* minded. A marvel in that way. He could out-guess any jinx in any machine. Could finagle it into behaving for an hour or a day or a week.

The man was too mechanical, too much involved with machinery.

The trouble was right in the air. It couldn't be seen, nor felt.

Finally a man who had had large experience with many mills showed him the way out. And what a sweet mill he had when he got the humidity right with a control that controlled.

American Moistening Co. heads. And that Amco control out-guesses every jinx of temperature change and outside climate.

If the trouble is in the roving, the yarn, the weaving, the finished goods or the goods *after shipment*, we can tell you about A MAN who was in the same fix and is now fixed-up and grateful to us.

This newly designed Amco Humidity Control automatically regulates and controls humidity in Textile and other mills without using wet or dry bulb actuated devices.

AMERICAN MOISTENING CO.

Humidifying Devices

Air Doctors Since 1888

EXECUTIVE OFFICES
261 West Exchange Street,
Providence, R. I.

SALES OFFICES
Boston, Mass. Atlanta, Ga.
Charlotte, N.C. Greenville, S.C.

New England Mill Situation.

April 12th, 1929

NEW ENGLAND textile mills continue to make slow progress toward larger operations. It is evident that in so far as cotton manufacturing is concerned there will be no material extension of plants in this section for a long time to come, but this does not mean that such a rapid contraction of facilities will be seen in the near future as that noted in the past five years. There are several plants in Fall River and elsewhere that will not resume print cloth yarn production and the disposal of them is being considered slowly.

The Loring interests have now definitely absorbed the Chace mills property in that city and will change it over into a plant for the production of curtain materials. A dyeing, printing, and bleaching addition will be made and facilities will be installed for making up curtains complete, ready for the retail markets. The Arkwright mills there have been completely remodeled and are now being started on specialties for curtain and casement materials for which the selling agents have an assured outlet. In addition to the installation of combers, some of the latest automatic looms have been purchased and set up.

These same interests are taking over the Langley group in the South and will shortly take over one or two paints in New Bedford. When these have been acquired, the agents for these properties in New York will have an assured source of supply for many of the specialty lines they have sold as converters in the past. It is proposed to operate the mills in Massachusetts on a night and day schedule of 16 hours daily and to confine the output to lines that can be sold regularly by the sales agencies already established and that sell to the wholesale or retail trades.

The work of organizing this merger is proceeding carefully and it is now definitely known that it will not comprise taking over many of the idle plants at Fall River.

The Dwight Manufacturing company that has a mill in the South and at Chicopee, Mass., where Dwight Anchor sheets and pillow cases are made, have offered to buy part of the Great Falls mills in Somersworth, N. H., but the closing of the deal has been delayed by court action taken to enforce claims made by some of the minority stockholders. In New Bedford, where plans were presented to stockholders for making a weaving plant of the Nonquit mills, a minority has held up final action.

The only serious labor troubles in New England mills at the present time are in Newmarket, N. H., and Warren, R. I., where strikes have taken place and remain unsettled. In the latter instance, the products is largely braids and narrow fabrics, and at Newmarket the product has been largely rayon and cotton mixtures.

Since the Bliss, Fabyan sales agency took charge of the York Mfg. Co., at Saco, Maine, part of the plant has been changed over to make rayon and cotton specialties. No more ginghams will be made at the plant. Other mills in Maine have been running in full and are showing profits, notably so in the case of the Pepperell plant at Biddeford where a wide variety of sheets and pillow cases, and many specialties are being produced.

The merger of the Berkshire, Coventry, Valley Falls, Greylock, and Fort Dummer mills has been completed and a sales agency for the plants has been opened in New York. The Butler mills combination, comprising mills in New Bedford and in Western Massachusetts, is now functioning, with an agency in New York. The Grosvernordale combination comprising the Grosvernordale mill in Connecticut and the Warren Mfg. Co., of Warren, R. I., is also functioning. The Federated Textiles, Inc., has taken over the sales of the Lorraine, Ponemah, and other products formerly handled through the American Bleached Goods Co., the Kelsey Wilton, and Lorraine companies.

Other mergers are being talked of but they have not yet assumed any definite form. Something is being done to bring about a union of sales forces for several fine goods mills but nothing very clear has yet been learned of the details or of the mills that will be interested.

In New Bedford, manufacturers showed a lively interest in the southern strike developments, for the reason that it is now recognized that the primary cause of the disturbances are those that hurt Paterson, Passaic, Lawrence, and other textile centers where no proper steps were taken to crush the revolutionary unionists at the bottom of the agitations.

Although communist labor leaders were prominent in the New Bedford strike throughout all the trouble, it was difficult to convince New Bedford manufacturers that industrial revolutionaries were at the root of most of their serious troubles with their operatives. Today, they are more than convinced as they are taking steps to try and bring about a union of all textile manufacturers to combat this form of agitation at its source.

Some of the New Bedford men propose to attending the joint convention of the two national cotton manufacturers' association to be held at Atlantic City in May to meet with southern manufacturers to see what can be done in a united way to educate all managers to the great danger threatening from the activities of organized communistic unions operating from Chicago and New York anarchist trade centers. The matter will not be brought up in any public way, but it is believed that plans will be worked out to stop the extension of activities so boastfully noted in other textile centers.

One reason why there has been so much indifference on the part of New England manufacturers toward the spread of communistic doctrines among operatives has been a belief that the activities merely represented squabbles between different forms of unionism. It is now very clearly seen that the old line unions in that section, in trying to preserve their own identity and their own organizations, have really been struggling against the most intelligently organized propagandists the country has ever known.

Fall River recognized the menace and prevented the striking communists from getting a foothold there while the New Bedford strike was on and when an attempt was made to bring out the workers from print works and mills in that city. The chief of police, the district court judge, the city newspapers, and finally the old line unions came out in denunciation of the leaders of the communistic bodies and finally controlled them.

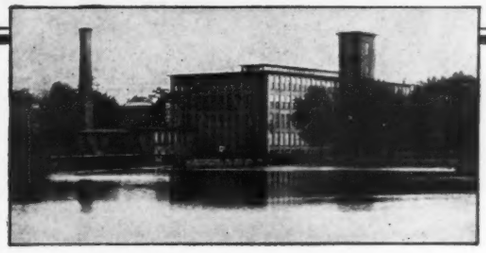
In Rhode Island the sentiment of the public is now so strongly against this form of unionism that it is probable that there will never again be a repetition of the disorders that occurred in the Knight mills a year or two ago. In some of the Connecticut centers, attempts made by some of these agitators to spread their doctrines have been stopped vigorously, without any public mention having been made concerning what was done to eradicate them.

In the past month, business has improved steadily in the New England mills. The fine goods mills of New Bedford have an average of seven weeks' work ahead and many mills have contracts in hand that assure steady operations throughout the summer. As a consequence of this condition there has been a notable revival of interest in mill shares and a change of sentiment in the attitude of bankers toward the industry as a whole. Very much remains to be accomplished, however, before all the sore spots in New England are healed. While mills are running nearer to capacity than for two or three years, it is generally conceded that the profit margins are very narrow and cannot be broadened greatly until production is more carefully regulated to the demand.

The finishing plants have been busier than ever before in their history in the printed goods divisions. All the large corporation and job printers of fabrics have been operating full time and in most instances overtime in the effort to meet the deliveries wanted in the markets. Attention is being called to the danger that is now obvious of the additions to fabric printing machinery being overdone. New and con-

(*Continued on page* 766.)

Fifteen years with Texaco Lubricants



FOR fifteen years all the machinery in this large South Carolina textile mill has been lubricated exclusively by Texaco.

It is one of the great number of textile mills throughout the country in which Texaco lubrication has demonstrated its substantial economies.

Texaco Spindle Oils, Texaco Oils for looms and top rolls and others are refined especially to meet conditions in the textile industry. They were developed after years of study. These specialized lubricants and the service cooperation offered by Texaco Lubricating Engineers assure to mill operators an exceptionally high power economy and reduction in maintenance.

Some of the power savings effected by Texaco lubrication are almost unbelievable.

This Texaco lubrication Service is available to you wherever you are. There is a Texaco representative nearby. He will gladly give you the benefit of his experience.

TEXACO LUBRICANTS

THE TEXAS COMPANY

17 Battery Place
New York City

TEXACO

Offices in
Principal Cities

THERE IS A TEXACO LUBRICANT FOR EVERY PURPOSE

NOTES ABOUT MEN YOU KNOW OR KNOW ABOUT

Frank S. Dennis, who, as reported last month, had accepted the superintendency of The Trion Co., Trion, Ga., has since been made general manager of the Ware Shoals Manufacturing Company, at Ware Shoals, S. C., and has taken up his duties there. Mr. Dennis' duties include the supervision of all of the Riegel properties at Ware Shoals, including the cotton mill, bleachery, fabricating department, and the allied enterprises in that city.

J. A. Asbelle, formerly production manager at the Langley Mills, Langley, S. C., has become superintendent of the Harmony Grove Mills, Commerce, Ga., succeeding J. R. Donaldson, who resigned to become superitendent of the Monroe Cotton Mills, Monroe, Ga., succeeding the late J. Wheeler Mears, Sr.

George E. Spofford, who recently resigned as president of the mills of W. H. Langley & Co., in South Carolina, has accepted the position of geenral manager of the Lewiston and Augusta (Maine) plants of the New England Public Service Co., operated by the Insull interests.

Charles F. Turner has been made superintendent of the Peerless Cotton Mills, Thomaston, Ga. For several months Mr. Turner has been in charge of the Bedaux department of the mills operated in Thomaston and Barnesville by the Hightower interests, and prior to that connection he was superintendent of the Georgia Mfg. Co., at Whitehall, Ga.

R. Millwood Matthews, who for several years has been superintendent of the Peerless Cotton Mills, Thomaston, Ga., has become associated with the B. F. Goodrich Rubber Company, in connection with the Martha Mills, at Silvertown, Ga., recently acquired by that company. A. T. Matthews is general manager and J. C. Edwards is superintendent of this plant. Millwood Matthews' duties will be associated with the personnel and village departments of the organization.

James Brown, formerly connected with the bleachery of the Ware Shoals Mfg. Co., Ware Shoals, S. C., will be general manager of the bleachery and finishing plant being erected by the Fairforest Finishing Company near Spartanburg, S. C.

Clinton M. Powell, for fourteen years superintendent of the Cabarrus Cotton Mills, Kannapolis, N. C., has resigned and has been succeeded by David A. Jolley, who was promoted from assistant superintendent. Zeb Bradford succeeds to Mr. Jolley's former position. L. H. Brown, of the Cannon organiaztion, has been made general superintendent also of the Cabarrus mill.

E. B. Cobb has resigned as overseer of weaving at the Victory Manufacturing Company, Fayetteville, N. C., to become connected with the Stonecutter Mills, Spindale, N. C. He is succeeded at Fayetteville by M. C. Tidwell, of Greenville, N. C.

James O. Cobb has become associated with the General Supply Company, of Danielson, Conn., and is in charge of the company's branch office at 12 E. Broad St., Greenville, S. C. He is a son of F. Gordon Cobb, vice-president and general manager of the Lancaster Cotton Mills, Lancaster, S. C.

H. A. McKew, formerly assistant superintendent of the Stonewall Cotton Mills, Stonewall, Miss., has become superintendent of the Wetumpka plant of the Alabama Mills Company, Wetumpka, Ala.

A. F. Bruton has become general manager of the plants of Saratoga Victory Mills, at Albertville and Guntersville, Ala. Several years ago Mr. Burton was president and treasurer of the Cascade Mills, Mooresville, N. C.

Claude W. Cain, formerly superintendent of the Excelsior Mills, Union, S. C., has become connected with the southern sales office of the Steel Heddle Mfg. Co., in Greenville, S. C. The main offices of the company are located in Philadelphia, with plants at that place and Greenville.

Captain M. F. Behar has become advertising manager of the Quigley Furnace Specialties Company, 26 Cortlandt St., New York City. Since 1924 he has been advertising manager of the C. J. Tagliabue Mfg. Co.

L. H. Bonn, formerly in charge of sales and advertising of the American Bemberg Corporation, has recently become associated with the Butterick Publishing Co., Graybar Building, New York City. Mr. Bonn will be connected with the advertising department of the **Delineator** magazine, and will continue to maintain his contact with the textile trade.

E. W. Seigler has been promoted to overseer of weaving at the Ninety-Six Cotton Mills, Ninety-Six, S. C.

T. A. Sweatt has become overseer of night carding, Kendall Mills, Inc., Camden, S. C.

W. H. Hand has become superintendent of the Clinton Cotton Mills, Clinton, S. C. He was formerly overseer of spinning at the Judson Mills, Greenville, S. C.

A. H. Walker recently resigned as overseer of weaving at the Greenwood Cotton Mills, Greenwood, S. C.

A. L. Banster has become overseer of carding at the Greenwood Cotton Mills, Greenwood, S. C. He was formerly connected with the Ninety-Six Cotton Mills, Ninety-Six, S. C., in a similar position.

E. B. Wise, for many years superintendent of the Martel Mill, Egan, Ga., from which position he recently resigned, has become superintendent of the Avondale Cotton Mills, Humboldt, Tenn.

D. I. Williams has resigned as superintendent of Chadwick-Hoskins Mill No. 4, at Charlotte, N. C., because of ill health. He is succeeded there by S. R. Power, who is also superintendent of the Chadwick Hoskins Mill No. 5, at Pineville, N. C.

John F. Long has become superintendent of the Laurel Cotton Mills, Laurel, Miss., succeeding W. Y. Harrison, resigned.

C. E. Barnes has recently become overseer of the cloth room at the Avondale Cotton Mills, Humboldt, Tenn., succeeding R. A. Brookins.

J. F. Collins has been made overseer of weaving at the Gloria Textile Co., Johnson City, Tenn.

W. C. Kilpatrick has resigned as designer at the Spencer Mills, Spindale, N. C., to become overseer of weaving at the Kenneth Mills, Walhalla, S. C.

Charles C. Kelley, general manager of Charles Cooper Company Machine and Needle Works, Bennington, Vermont, died on Tuesday, April 23rd, following an extended illness.

Charles E. Carpenter, president of E. F. Houghton & Co., Philadelphia, Pa., and editor of the world-famous "The Houghton Line," died at Miami Beach, Florida, on April 6th, in his 67th year.

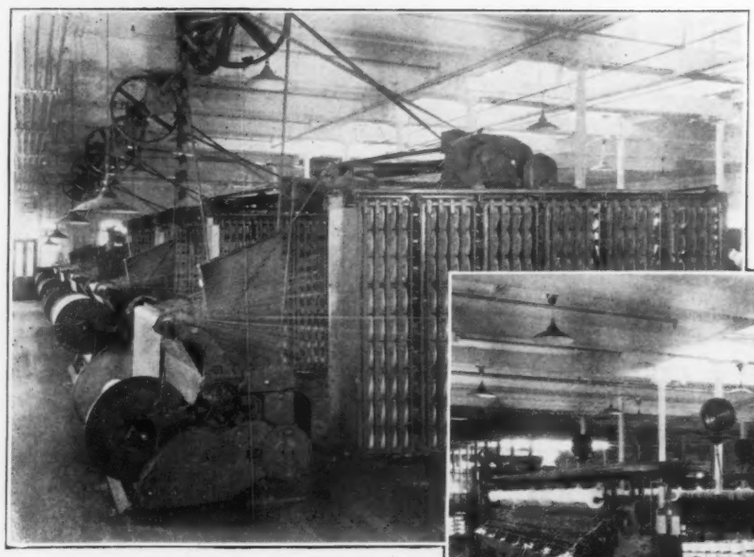
W. H. Hardeman, for years overseer of weaving, Newberry Cotton Mills, Newberry, S. C., is now manager and superintendent, Consolidated Textile Corporation, LaFayette, Ga., succeeding F. S. Dennis.

"EVERY KNOT A WEAVER'S KNOT"

MODERN MACHINERY

in a

NEW BEDFORD MILL



A RECENT INSTALLATION

BARBER-COLMAN Automatic Spoolers and High Speed Warpers, five of each, are chosen for the equipment of one of the outstanding mills of New Bedford—a mill that is making cotton yarns for use in a product which requires uniformity and strength. Barber-Colman Machines leave all the strength *in* the yarn and wind it at *high* speed with *low* and *uniform* tension. These features, and the many others which the machines possess, make them highly desirable for the production of quality yarns, *economically.*

Let us send you the latest edition of our Descriptive Booklet, just off the press.

BARBER-COLMAN COMPANY

General Offices and Plant

GREENVILLE, S. C. ROCKFORD, ILLINOIS FRAMINGHAM, MASS.

Does The Man Who Buys Your Machinery Buy Your Bobbins?

WHY not buy your bobbins, spools and shuttles on the same basis as you buy machinery, —on the basis of performance?

The highest price spinning frame or speeder is no better than the bobbins which do the work. The best loom in the world cannot weave good cloth economically without a good shuttle.

U S Bobbins, spools and shuttles set the standard for quality and service,—and yet prices are not always out of line. You will never know whether or not you are getting the most for your money until you have tried U S products and made comparisons.

One order will convince you of the economy of U S Uniform Bobbins.

P. S. U S representatives are always within reach of your mill and are specialists who can offer constructive suggestions. Why not take advantage of this service?

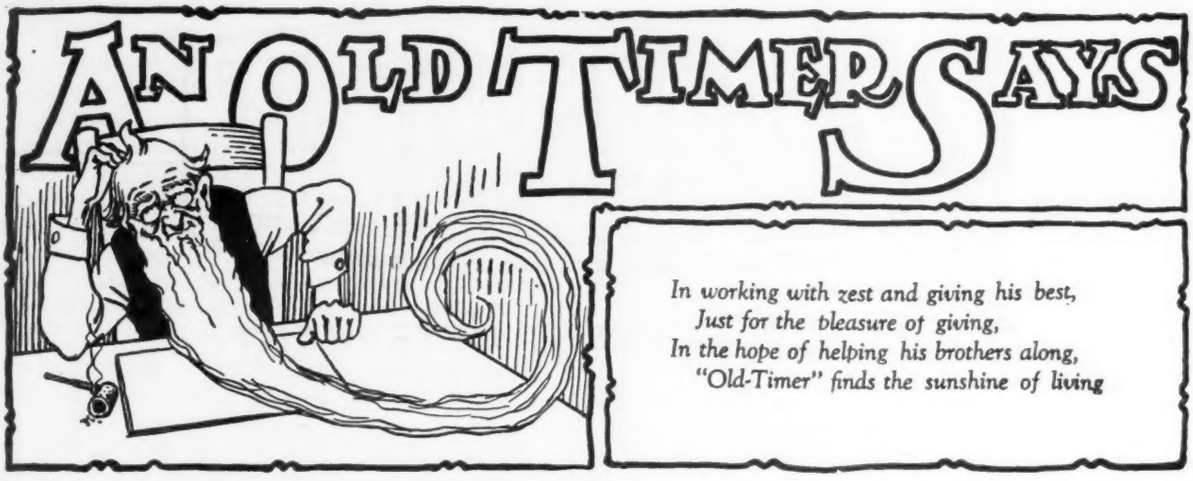
U S BOBBIN & SHUTTLE CO.

PROVIDENCE, R. I.

Branch Offices

GREENVILLE, S. C. HIGH POINT, N. C. PHILADELPHIA, PA. ATLANTA, GA.

BUILDERS OF BETTER BOBBINS, SPOOLS, AND SHUTTLES


AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brothers along,
"Old-Timer" finds the sunshine of living

Are *You* as *Intelligent* as Your Cow?

IF you would study the workings of an army, you would find about the best example I know of as to how a cotton mill or a room in a cotton mill should be run.

Armies represent about the highest type of "team work" of any combination or aggregation of human beings we have in the world.

And anyone who has studied all of the great wars, and the great generals, or the men who had charge of those armies, can tell you that in the case of practically every great victory, it can be traced back to the loyalty of the army—the wise selection of sergeants, lieutenants, captains, colonels, and up—which all means that the army which had the best "team work" was the winning army.

What better illustration could you have for a cotton mill which is composed of weavers, spinners, frame hands, oilers, filling rollers, sweepers, etc., which represent the privates in the army?

The section men come next, who represent the sergeants and the corporals.

Then the assistant overseers, who represent the captains, and the overseers, who represent the majors.

Next, the superintendents, who represents the colonels. But where we fall down is that we do not get the "team work." The army does.

All big business—modern business—what is it but team work on a big scale?

The success of every man in a cotton mill, from section man up to superintendent, and in every other line of work where a man has charge of a few or a great many men—where there are departments like carding, spinning, weaving in a cotton mill—all his work—all his success depends absolutely upon his ability to obtain "team work."

The one big mistake most all overseers and superintendents make in obtaining team work is that they seem to expect the other fellow to do it all. The weaver raises cain when he finds a bobbin of tangled filling, and gets as mad as Christmas when the spinner shows him a quill with only about three-fourths of the filling run off. You know, that guy who sighed for some power by which we could see ourselves as others see us, surely should have been a cotton mill man.

Not very long ago the president and general manager of a large group of mills were discussing a vacancy they had at one of their mills. The manager had talked to one of the young men in the organization about the place, and as the young man had made quite a success on the jobs on which they had had him as overseer, the manager was telling the president of this young man's record and recommending him for the promotion.

It so happened that two of these mills oftentimes exchanged yarn on warper beams or spools to keep the machinery in both plants balanced, and while the president and manager were in conference a boy walked in and handed the manager a letter. It was from the young man whom they were talking of promoting. He wanted to know whether he would be held responsible for the production of the mill when he had to run yarn sent over from the other mill. The manager handed the letter to the president. He read it and said, to the manager, "There is no need to discuss this man further. He would not make a good team worker."

I have heard the remark by overseers and superintendents many times that such and such a young fellow who had given more or less trouble around the mill and would not work had joined the Navy or Army, and that it was a good thing for him.

We all know that the Army and Navy have wonderful discipline and loyalty, and of course we don't have the law behind us to enforce anything like that in our work, but please bear in mind that I am not talking about operators. *I am talking about overseers and superintendents.* They are the fellows who do not work together as they should.

There is not an overseer or superintendent who reads this dope but who knows the value of team work, but just wait until tomorrow and see if he doesn't take a sly dig at the spinner, the weaver or the carder or whichever is his associate overseer.

Darned if I know why it is that a sensible man—a man who is sensible enough to have risen to the po-

NAPTHOLE

THE NEW SOLVENT DETERGENT

for

COTTON IN THE KIER
WOOL IN SCOURING
SILK DEGUMMING
RAYON STRIPPING

COLLOIDAL

CASTOR OIL
OLIVE OIL
NEATSFOOT OIL
TALLOW

for finishing

THE FACILITIES OF OUR RESEARCH LABORATORY ARE CONSTANTLY AT YOUR COMMAND. BRING YOUR PROBLEMS TO US

E. F. DREW & CO., INC.
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BOSTON – PHILADELPHIA – CHICAGO – GREENVILLE, S. C. – ATLANTA, GA.

sition of overseer or superintendent—will stoop so low as to knock his brother overseer. Some do it openly—some beat the devil around the stump and all of them know that they are not manifesting a spirit of "team work" when they do it.

Human nature is surely some strange animal. I have had intelligent men to explain looms to me, and I could understand pretty well. I have also had spinning frames, cards, twisters, combers, speeders, automobiles and thousands of other things, both simple and intricate, explained. But when it comes to a human being—well, that animal has never been satisfactorily explained yet.

A cow, a horse, a dog, or any other dumb animal will not do any act which they have learned by intuition or experience, or whatever you call it, will do them harm or hurt them in any way. But you can ask any intelligent human being—any overseer or superintendent—if he does not know that it is to his own personal interest as well as to the best interest of his firm to cooperate with his fellow worker—to show the spirit of team work and he will invariably say "Yes, certainly, I know that." Then in two hours' time he will do just the opposite.

Oh, the devil! You explain it. I can't.

"Unkle Claud" Likes "Old-Timer."*

EDITOR COTTON:

Your ability to keep one gessin, or in suspense so-to-speak is only exceeded by one other livin human, this gentleman bein none other than Sid Smith, the fellow who dopes out the Gump comics.

Prior to that historical Savannah meetin of the Southern Textile Association a few years ago, you announced through your columns that "Ole Timer" would be there, and that we would be able to shake his hand, and tell him how we enjoy his artickles, and ask him a few questions etc. I had my ole suit drycleaned, and Sallie bought me some new shirts and sox, and I fixed up spick and span, and beat it to that never-to-be-forgotten seaport with the hopes of seein this distinguished gentleman, and talkin with him face to face. Well you noe the results. I wuz tole afterwards the Ole Timer wuz there, and that I did see him and talk with him. Maybe I did, and the joke wuz on me, but to have seen this grate personage and not be concious of the fact, wuz not very satisfying to a man of my liberal supply of curiosity.

I wuz so delited a few weeks ago to read in your January issue of Cotton that we would get to meet Ole Timer through your columns, as you expected to have his pitcher struck, etc., and again imagine my surprise and may I say disgust, when I turned to Ole Timer's page, to note that the mystery wuz yet unsolved, and that instead of havin Ole Timer's pitcher, you payed some ole Bible Salesman, or an Ex-Peano Tuner to pose fur you, and thus the mystery deepins, and we of the mill fraternity must continue to suffer.

Well there's no sech thing as managin an editor or a woman, so we will have to travel on as the plot thickens, wonderin as we read his valuable artickles from month to month, jest who in the hell Ole Timer is anyhow, but in spite of the trick you have played on us agin, I want to thank you for renewin your contrack with him, and here's hopin that it is for life, and one week after.

Everybody in our organization from President on down to oilers read his artickles, and we discuss his artickles between the looms, the cards, the pickers, the speeders, and spinnin frames, in the cloth room, machine shop, in the barber shop, and on the church steps, and I dare say our mill has profited many hundreds of dollars thereby, and many are the young men, whom he helps to get out of that ole rut which will hold a fellow down at the very bottom.

Well Bob, we'll bury the hatchet and forget about the deal you have given us, ef you will promise us you will never attempt to fool us agin, and that you will sine up with him fur life, that we and thousands of others may be enabled to reap the benefit of his braines and experience, and we will promise you in turn that we will never ask you again jest who in the hell our friend and benefactor is no how.

Yours full of curiosity,

UNKLE CLAUD.

* Editor's Note—"Unkle Claud" is one of the more popular and well-known mill managers of the South. He writes under that name for the newspaper published by his mill.

Cotton Comment.

(*Continued from page 756.*)

next July would be the smallest since 1925. Last year Secretary Hester made the world's carry-over of American cotton, exclusive of linters, 5,078,000 bales, year before last 7,012,000.

In view of the indicated small world's carry-over of American cotton this season, and because of the continuance of large consumption of American by the world, which Garside estimates for this season as pointing to around 15,250,000 to 15,350,000 bales exclusive of linters against 15,500,000 last season, there is the apparent need for the making of a large crop for next season's requirements, perhaps at least 15,250,000 bales exclusive of linters. Last years' crop, counting round as half bales, was 14,269,313 bales; year before last, 12,703,112, linters not included.

GOVERNMENT BOLL WEEVIL SURVIVAL REPORT
SURVIVAL OF WEEVIL PER TON OF MOSS

Year—	1929	1928	1927
North Louisiana	3.8	1.0	4.0
South Louisiana	261.8	365.1	70.0
La., State Average	40.6	65.9	15.7
South Carolina	70.7	21.1	none
Georgia	38.7	88.7	no report
Alabama	10.8	45.2	no report
Texas	101.7	74.5	no report

While private returns indicate a probable increase in this year's acreage, ranging from 1.9 per cent to 4.7 per cent, nothing officially will be known as to this year's cotton acreage until next July. Meanwhile weather conditions may affect intentions to plant, although good weather would be favorable for sowing of a large acreage.

Contrary to general expectations, returns to Secretary Hester show that sales of fertilizer tags in the cotton states during March were smaller than for March of last year—1,972,397 tons against 2,051,173, for eight months ending March 31st; 3,158,217 tons compared with 3,779,091 tons for corresponding period last season. Without a generous use of fertilizer (plant food) in the eastern belt, where most of the fertilizer is used, it is usually difficult to make a large crop east of the Mississippi River.

To the west of the Mississippi, however, there is a good season in the ground, and any increase in acreage will likely be largest in that section, particularly in Oklahoma and Texas where farming is probably more advanced than in other sections of the belt.

Arizona Pima Cotton

THE information below was taken, part verbatim and part in abstract, from a booklet issued by E. A. Shaw & Co., Inc., Boston, Mass. This concern has followed closely the development of Pima, since the first efforts, having taken a majority of the bales produced in the first crop. It is felt that the information below with regard to the development of this enterprise in cotton growing will be of general interest.

EXPERIMENTS in the growing of cotton in the Salt River Valley of Arizona were first started in 1900. Dr. A. J. Chandler planted imported Egyptian seed on his experimental farm at Mesa, a town sixteen miles from Phoenix. These tests were unsatisfactory. The U. S. Department of Agriculture, realizing the adaptability of the climate and soil, next undertook experiments at the Government experimental station in 1901. They planted Egyptain seed because of the similarity between the climate and soil of Arizona and the Nile Dela. After several years, a plant was produced which had improved in charcter, length, and strength of fiber. This species was called Yuma. The Government distributed Yuma seed to farmers who immediately started raising Yuma under the supervision of the Department of Agriculture.

The Government continued its experiments and in 1910 a plant, of distinct difference from Yuma, was found growing in a field of Yuma at the Government station on the Indian reservation at Sacaton. Seed from this single plant was planted in 1911, followed by plantings during 1912 and 1913. This new type had a greater length and strength of fiber than the Yuma variety, the staple ranging from 1⅝-inch to 1¾-inch, according to the different conditions under which it was grown. The 1913 crop, showing no difference from the original plant, offered a supply of seed to the farmers. This new variety was called American Egyptian, or Pima, after the county in which it was first grown. The Government used extreme precaution in its supervision of the selection of seed and the land on which it was to be planted. Every effort was made not to let Pima cross with other varieties.

The first crop was in 1916, when 253 bales were produced, and the first official standards for American Egyptian cotton were established in 1918.

Recognizing the fertility of the soil and sub-tropical climate, the Government established the Salt River project in Arizona. First Roosevelt Dam, completed in 1911, was built, with a storage capacity of 1,637,000 acre-feet of waste. Below this was built Horse Mesa Dam, completed in 1927, with a reservoir of total storage capacity of 245,000 acre-feet. These and other reservoirs provide 1,945,000 acre-feet of water, sufficient, it is estimated, for all-year irrigation of 648,300 acres, of which about 300,000 acres were in cultivation last year, with about 100,000 acres under Pima and Acala cottons. A cooperative association of farmers and land owners acquired the $25,000,000 Salt River project in 1917, and, with plenty of water available, the raising of Pima cotton is one of the main farming enterprises of the section.

Pima farmers receive pure certified seed, from thoroughly rogued and inspected plants in fields isolated from other varieties. The yield of lint Pima averages a half bale per acre. The roller type of gin is used on Pima cotton.

All Pima cotton grown in the Salt River Valley is concentrated at Phoenix. The compressed bale is 57x 19x23 inches, with a density of 33 to 40 pounds per cubic foot for export and from 22 to 40 pounds per cubic foot for shipments to United States mills. Pima cotton does not require fumigation before use in American mills. During the twelve months ending July 31, 1927, 20,839 bales of Pima were consumed in the United States, according to the report of the United States Bureau of Census of the Department of Commerce.

Broome-Lyle Bobbin Former.

A new device known as the Broome-Lyle bobbin former has recently been put on the market by the Mill Devices Company, Inc., Gastonia, N. C., manufacturers of the Boyce weaver's knotter. The object of the device is to build a better bobbin on both spinning and twister frames and to prevent slubbing of yarn. It consists of a stand, shaft, eccentric roll, and a new filling cam. There are only four parts to the device, making for simple adjustment, the company explains.

The object of the attachment is to fill out the bottom of the bobbin or quill to the full diameter of the ring or shuttle. Mill men know that when a small amount of yarn is put on at the bottom and top of the bobbin or quill, more frequent doffing is required, and loom changes come more frequently, in addition to the fact that there will be more knots in warp yarn, and more shuttle marks and seconds from looms, the manufacturers explain. The device was developed in line with the idea of securing larger package supply throughout the mill, and the manufacturers explain that it achieves this result in the manner described.

New England Mill Situation.

(*Continued from page* 758.)

templated equipment will increase the national capacity for cloth printing from 7 to 10 per cent and warnings are being sounded against overproduction in that division as there has been in others.

The machinery plants are inactive as a rule. There are exceptions, especially in the matter of new fancy looms and filling in or replacement orders. Long draft spinning equipment is being very generally installed.

New Bedford mills that have undertaken the introduction of specialization plans are making progress slowly. Thus far there has not been much changing of the form of machine attendance by the workers. Most of the investigations thus far have been confined to engineering tests of the work with the present machinery and where it has been found that improvement in methods and costs can be brought about without disturbing workers, they have been undertaken cooperatively between overseers and operatives.

Union leaders of the communistic type have been trying to make capital out of the introduction of the new system and have failed to make any impression as before any real change is undertaken it is discussed by the union leaders of the old type, by the operatives themselves, and to a lesser extent by the general public whose committee is working with both sides to give the new plans a fair trial.

A New Method In Weaving Rayon

ONE problem in weaving rayon is that the slightest bunch or spot shows up decidedly more in this material than in cotton. Mis-picks, slubby filling, etc., are among the greatest curses of weaving, especially on silk and rayon, because of the extreme thinness of the cloth. The manufacturers today are turning out excellent products, but still they are not perfect, and, according to the old adage, "There's always room for improvement."

In order to turn out the best materials possible, we must help the weaver as much as we can. Give him good warps, good shuttles and good filling. This enables him to give the best that is in him, and, as a result, better cloth is obtained. We all know that a half-hearted weaver is worse than no weaver at all, because if he has no interest in his work, the resulting cloth will be little more than rags. Therefore, we must do all we can to aid the weaver.

With this idea in mind, for the past several years I have been working steadily toward that goal, being in a position to experiment with different ideas. After considerable work, I have developed an idea in the weaving of rayon, which I believe is a big step toward turning out a perfect piece of cloth. It is good in both silk and cotton weaving. With it, there is twice as much cloth per tube woven as in the old system. The idea will be readily understood by the reader in glancing at the accompanying illustrations. The former method is shown in the tube at the top, this tube being five inches long and tapering from 9/16-inch at the base to ⅜-inch at the top. The tube which I have adopted measures 6¼ inches in length, and tapers from 7/16-inch to ¼-inch. The dotted lines show the tubes, while the outer solid lines show the outside dimensions of the filling wound on the tubes. The drawings are actual size, so that the difference in the amount of yarn placed on the tube will be apparent to the reader.

In the making of a fancy weave, where the weaver is compelled to find the pick, I have found that this method will reduce the changing of shuttles by 100 per cent. This increases the production, of course, and results in a better cloth, because of their being less chance for mis-picks, broken picks, and thick and thin places.

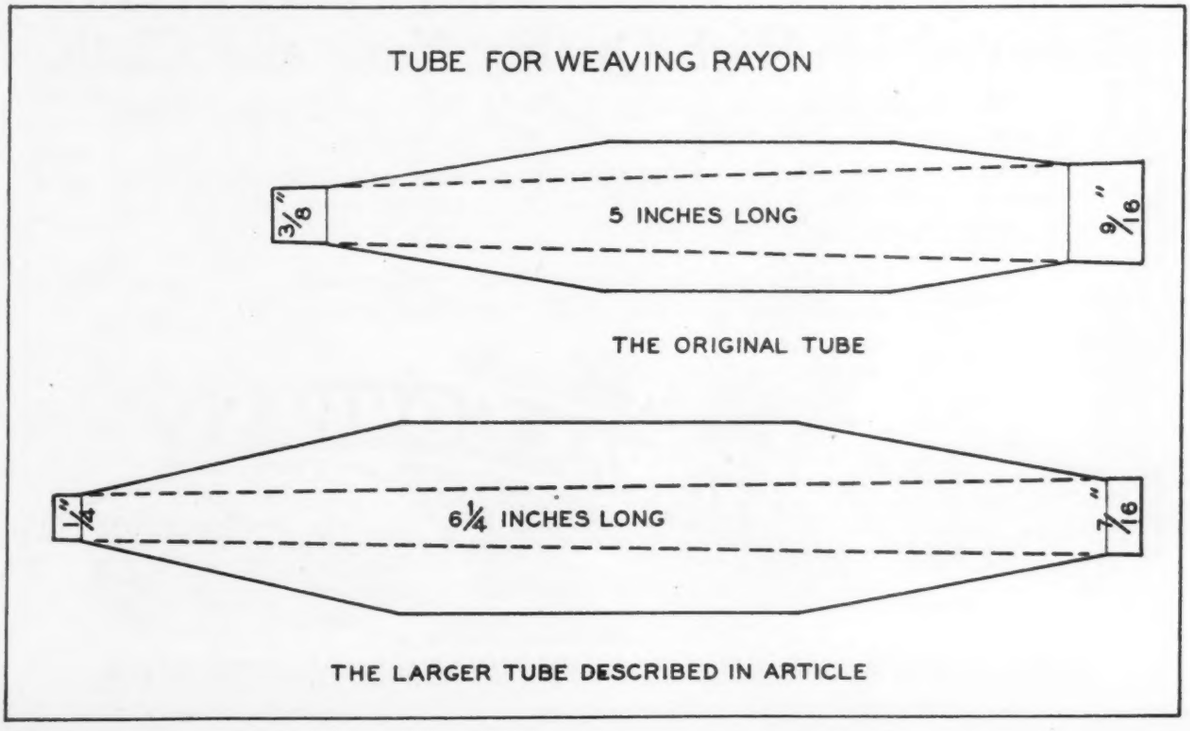
This also may be applied to a leno using rayon filling. To illustrate: a leno cloth of 36 picks, 39 inches wide, with this system, will weave 60 inches of cloth without changing the filling, as against 30 inches with the other type of tube.

On Jacquard work, we all know that it is very difficult for a weaver to find the pick, because it is necessary for him to turn back the cards six times, thereby losing considerable time, and many picks, during the course of a day. On a Jacquard weave of 56 picks, 52 inches wide, this method will weave from 20 to 22 inches of cloth, as compared with the weaving of only 11 to 12 inches by the other plan.

The shuttle which I use is in many ways better than the ordinary shuttle, and at the same time will not cause any extra expense. As for Draper automatics, I have put 3,500 yards of 150 denier rayon filling on one bobbin, and found it practical for weaving.

I figure that the cost of winding will be reduced considerably by this method, probably 25 per cent. Where a winder tender runs 30 ends with the shorter tube, she should handle 40 to 50 ends with this tube.

I have also developed a means by which a leno Jacquard may be driven by a cam instead of a griff, resulting in 50 per cent better cloth and a third more production.



The Great American Competition

The Great American Competition is the competition of Brains. Not so much the brains of Genius as the brains of matured Vision, Judgment, and Understanding.

Back of all our material progress in business are these *mental* capacities —to see the need of better things, to sense the right, and to know how. In their fullest possession is a power that defies material competition. Between their grades of excellence is the great struggle—the Competition of Brains.

Among brains, the enlightening facts and figures of Modern Accountancy are recognized as stimulants to right thinking, quite as much as material factors in management and control.

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ACCOUNTANTS AND AUDITORS—SYSTEM SERVICE

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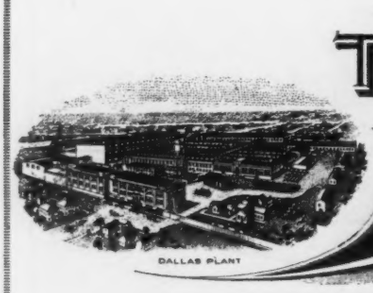

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HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all varieties of Mill Subjects

Life of Pickers and Shuttles.

EDITOR COTTON:

We should be glad to see some discussion in the "HOW OTHER MEN MANAGE" department as to the life of leather pickers on Modified D Draper looms running on 7 to 14-ounce duck. We would also be glad to have the experience of other mills on these constructions, with this type of loom, giving the average life of their shuttles. I might say that we use dogwood seconds shuttles.

CONTRIBUTOR No. 4565.

An Organization for 30s and 43s.

EDITOR COTTON:

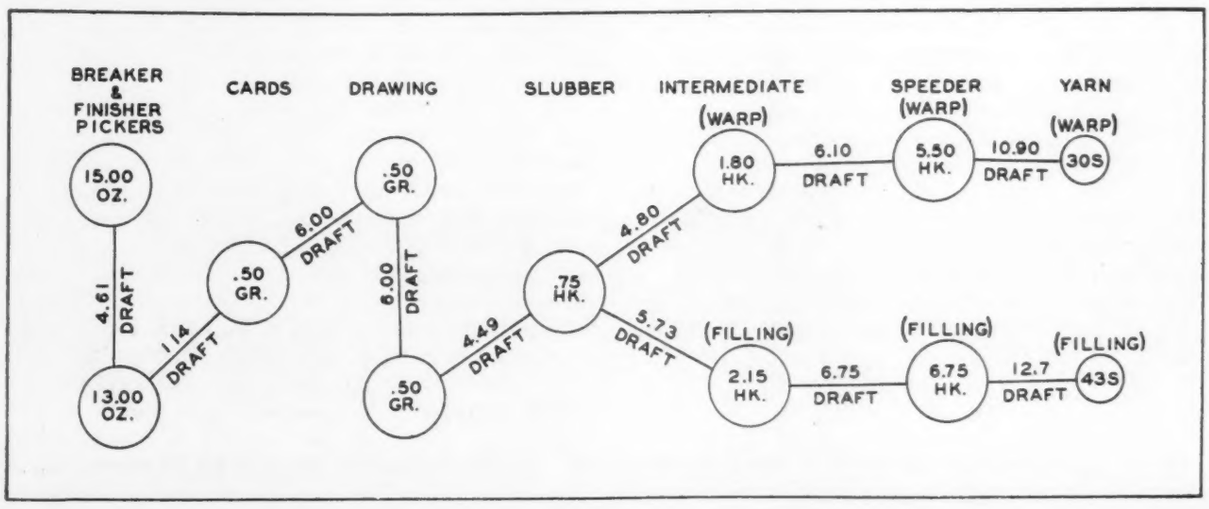
I will give you in this letter a yarn organization showing the drafts, hank rovings and other miscellaneous information in connection with operating a mill, equipped for manufacturing 30s warp and 43s filling. I am writing this in response to your contributor who asked several months ago for this information. While I will not attempt, without a knowledge of his local conditions, to recommend anything specific for him, this lay-out of drafts, speeds, twists, production, etc., may be of interest to him and to other readers in connection with organizations for these numbers. We will assume that the mill has about 7,200 warp spindles and 6,400 filling spindles, and is designed to produce approximately 9,400 pounds of warp roving and 6,100 pounds of filling roving.

For the benefit of the readers, I would call attention to the chart or draft and weight table which accompanies this letter. While the same information can be compiled in tables, and in other forms, I have found this method to be especially convenient and handy. You will note that in the circles, under each process, the weight of the product of that process is given, and on the lines between the processes, the draft necessary to secure that weight of product is listed. I think any mill could use such a chart on their organizations to very good advantage.

I will give in the first table the production of various operations (based on H. & B. catalog standard for 10 hours), showing the hank roving, speed, pounds per spindle or unit, number of spindles, total pounds produced, twist multiple used, etc. The drafts, as indicated, will be found in the chart accompanying this letter.

We invite our readers to make use of this department for the discussion of any and all problems arising in the mill or the finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

Hank Roving	R. P. M.	Pounds per Spindle or Unit	Number of Spindles	Total Pounds	Twist Multiple	Product
.50-gr.	10½ (doffer)	107	24	2568		Card Sliver
.50-gr.	300					1st drawing
.50-gr.	300					2nd Drawing
.75-hank	171	14.56	176	2562	1.20	Slubber Roving
1.80-hank	129	4.87	321	1561	1.40	Intermediate (Warp)
2.15-hank	118	3.76	270	1001	1.40	Intermediate (Filling)
5.50-hank	96	1.16	1280	1482	1.45	Speeder (Warp)
6.75-hank	86	.86	1181	1018	1.45	Speeder (Filling)
30s warp	116	1.35	7200	1566	4.75	Warp Yarn
43s filling	118	9.53	6400	1016	3.25	Filling Yarn



On frames from the slubbers through the roving or speeders, the front roll settings should be 1/16-inch over the length of staple of cotton used, from bite to bite. On spinning frames, the roll settings should be 1/32-inch over the length of staple of cotton used.

The card settings I would recommend are as follows: Feed plate to licker-in, 14; licker-in to cylinder, 7; doffer to cylinder, 7; flats to cylinder, 10 to 7; mote knives to licker-in, 7; doffer comb to doffer, 12 (depending on humidity conditions); cylinder, 170 r.p.m.; doffer, 10½ r.p.m. These settings are of course not iron-bound, as the location of the cards, local conditions, stock, etc., etc.. must be taken into consideration.

Speed of beaters I would recommend as follows: Porcupine beaters, 1,000 r.p.m.; blade beater settings should be governed by the beats per inch, not to exceed 35 on breakers and 45 on finishers. There should be sufficient fan draft for good running work; the drafts are usually left correct by the erectors.

As to the speed of drawing frame front rolls, I would say 300 or less revolutions per minute—just as slow as is possible to run the required poundage through the available machines.

CONTRIBUTOR NO. 4563.

Some Points on the Multiple System.

EDITOR COTTON:

I recently had some correspondence with a mill which was interested in the multiple system or labor extension system in connection with the weave room. Having had a great deal of experience with this practice, I was glad to furnish them with certain information which we had found to be important in connection with establishing this system in the weave room, and, for the possible interest of some of your readers, I am passing the information along to you in this letter.

I pointed out that the best method for any mill to follow in preparing for the multiple system is to find out what the actual loom stoppage is per hour or per day. Then it is generally considered that a weaver can start up 300 looms per day, or 30 looms per hour. By taking the actual loom stoppage and dividing it into this figure, we have a bisis upon which to start the multiple system in the weave room.

Let me take this opportunity also to say that a mill should be very careful to find out exactly what the loom stoppage is, and to work on the different items of stoppage, such as spooler kinks, gouts, etc., until the loom stoppage has been reduced to a minimum, before making an effort to put the system in.

This will explain why it is impossible to state definitely just how many looms on any given fabric a weaver can operate, because the loom stoppage will vary with the different mills. For example, on a 68 x 72 construction, you would probably find weavers running anywhere from 60 to 80 looms in different mills.

Our method of paying battery hands is by the battery. Do not put any one in the battery hand's place at noon time, because the battery holds enough filling to let the battery hand stay out for 45 minutes, which is our noon time. Here again, the matter is dependent upon the length of time a filling quill will run in a shuttle. For example, on 40s filling, with a 7⅜-inch quill, the quill should run about eight minutes. Then, if the looms are not throwing out too much filling, it is possible for a battery hand to attend as many as 80 looms.

Our loom fixers do not tie on any of their own warps, nor take off the pattern when a warp runs out. We have what we call a warp hand, who does this, and who also puts in the break-outs. In other words, the warp hand is also the smash hand.

There will be found a variation in the number of looms to the fixer in different mills, even on the same style of goods, and on the same kind of looms, inasmuch as some mills get more yarn on the loom beams than others, even on the same size loom beam. These, and many other local conditions, change the number of looms which a loom fixer can take care of.

I should be glad to see in your columns further discussion with reference to the details of operating the multiple loom system in cotton mills.

CONTRIBUTOR NO. 4564.

Proper Friction on Ball Warps.

EDITOR COTTON:

In looking over the January issue of COTTON, I find on page 315 an article signed "MACK (N. C.)," with reference to securing the proper friction on ball warps. He suggests taking the friction weights off and putting thumb screws on them. Then in starting a warp, he says, move the friction weights out to the end of the friction lever. In running a warp 6,000 yards long, for example, he says the first 500 yards are run with the weight at the end of the friction lever. Then the weight is moved up halfway on the friction bar and allowed to remain there until the clock registers 2,500 yards, then the weight is moved up as far as it will go.

This idea of his may be all right, and probably was an improvement over what he was previously getting, but I for one, am unable to understand why the weight on any ball warper should require to be changed in the process of making a full warp, if the speed of the traverse is correct for the thickness of the strand one is warping, and the proper amount of weights or friction put on at the beginning, are enough to pull the yarn through the warpers. This should, and will, make a warp up to 300 pounds without bulging.

I can understand that some men making warps that come within the high or low limit of size of strands, so that the warps do not bulge, and where no change gears are used on the traverse shaft, would find some difficulty in trying to make ball warps with from say 25 to 100 per cent larger diameter of strands than their present largest warps. In my case, I know that we have to contend with ball warps from 200 ends of 12s/1 on up to 500 ends of 8s, 12s/3, etc., averaging 300 pounds. We have good, squarely built ball warps, and find that it takes more speed off the lay for the larger strands, and also a good deal more friction weight to pull them correctly through the warping machine. We have made our own change gears by putting them on the opposite end of the worm

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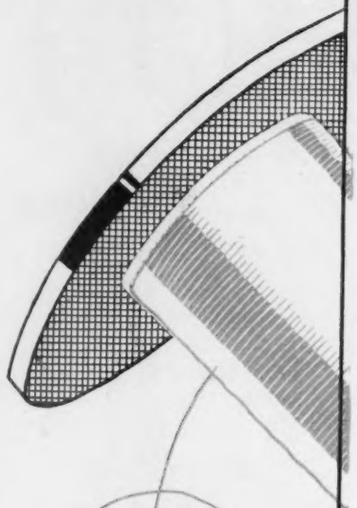

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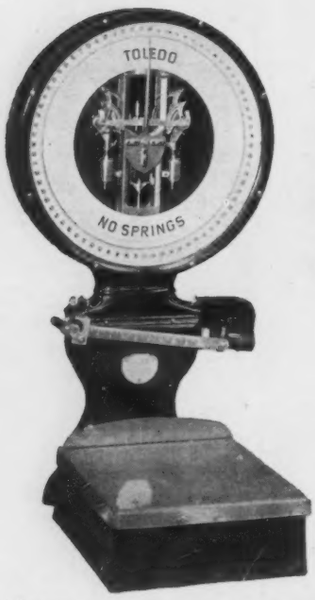

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shaft, from which the machine maker applies them, and we found out a good many years ago that to make good, long chain ball warps, it is of the utmost importance to see that the speed of the traverse is somewhere nearly right, as well as that the proper amount of weight is applied to pull the whole business right from the start without slippage.

CONTRIBUTOR NO. 4283.

Where Should the Light Beam be Placed in a Slasher Set?

RECENTLY a question was submitted to COTTON presenting the following problem: If there were five section beams of 400 ends each, and one section beam of 100 ends, in the creel of the slasher, where would the beam of 100 ends be placed in the creel, and why?

This question was submitted to two correspondents, and their replies are given below. If any reader would like to express an opinion on this question, the editors of "HOW OTHER MEN MANAGE" would be glad to receive a letter from him outlining his views and explaining the reasons therefor.

The first man expressed the opinion that the beam of 100 ends should be run back of the five beams of 400 ends each, in order to permit the convenient use of more friction on this beam, since it would naturally be lighter than the heavier beam; and the friction is more easily applied if the beam is located at the back of the creel. Of course, he pointed out, that if the 100-end beam should by any chance be wider than the others, it would be advisable to run it in the front in order to prevent the rolling of the ends, which would be occasioned by having the wider beam at the back. However, under ordinary circumstances, he believes the lighter beam should run at the back.

The other man expressing an opinion agrees that the 100-end beam should be placed at the back of the creel, and gives his reasons as follows:

"An ordinary section beam containing only 100 ends would necessarily have a very uneven surface. There would be grooves and ridges along the surface for the entire length of the beam. If this beam is placed in the creel anywhere other than at the back, and the yarn of each preceding beam, joining and running with the yarn of each succeeding beam, as is usually the case, then it can be readily seen that the sheet of yarn will run in the grooves of the surface of this beam, causing the ends to roll. Consequently, when these ends which have rolled reach the lease rods on the front of the slasher, after being sized, a great many of them will be broken. If the slasher tender does not put on new lease strings each time an end is broken, this broken end will run out of lease, and a warp made in this manner will give a great deal of trouble in the weave room.

"If I were in a position where I had to use a beam containing only 100 ends, I would put these 100 ends on a loom beam and place it in the back of the creel running yarn over all the other beams, and joining the remainder of the set at the immersion roller in the size box.

"Or, if my warpers were such that I could not warp a loom beam on them, I would put 100 spools in the creel and place this creel at the back of the slasher, running the yarn directly over the spools and joining the remainder of the set at the immersion roller, just explained."

Readers desiring to express an opinion on this subject should address their communications to the "HOW OTHER MEN MANAGE" department of COTTON.

Rules for Figuring Eyes in Harness.

EDITOR COTTON:

With reference to the question asked concerning a method of calculating the number of harness eyes per inch for weaving a 37-inch broadcloth with 5,350 ends, 144 sley, the following may be of help in the solution of this problem:

Although broadcloth is a plain cloth, it is a specially constructed plain cloth, and the rules for calculating the eyes per inch for plain fabrics do not apply. Owing to the crowding of the warp threads there is very little shrinkage in the filling. The writer has in mind a case where a sheeting mill booked an order for poplin, of which broadcloth is a fine quality. The harnesses were made according to the rule for regular plain work, and could not be used, due to the failure of the cloth to contract from the width in the reed. From two to three per cent should be allowed for contraction in weaving 144-sley broadcloth. In any case the following rule will apply:

$$\frac{\text{Ends per inch in cloth} \times (100 - \text{Per Cent Shrinkage in Filling})}{\text{Number of Shafts to be used}} = \text{Eyes Per Inch.}$$

$$\frac{144 \times .98}{6} = 23.5 \text{ eyes per inch}$$

I hope this will be of interest in connection with this question.

CONTRIBUTOR NO. 4094.

EDITOR COTTON:

In answer to the request of "CONTRIBUTOR NO. 4037," who asks for a rule to use in figuring the eyes per inch in harness. I am giving him a rule I have followed for years and it works out correctly.

To illustrate I will assume a certain construction, i.e., 90 sley, 100 pick and 40-inch cloth.

$$\frac{(90-1) \times .95}{2} = 42.27 \text{ dents per inch.}$$

(40 inches $\times$ 90) + 24 selvage ends = 3,624 ends in warp.

3,624 (total ends) — 24 (selvage ends) = 3,600 ends.

3,600 $\div$ 2 ends per dent = 1,800 dents used two in a dent.

1,800 + 12 dents four in a dent = 1,812 total dents used.

1,812 $\div$ 42.27 dents per inch = 42.86 reed spread.

To the spread of reed I add a quarter inch for taper of harness.

42.86 + ¼-inch = 43.11 inches.

Now we require a harness that, after having drawn

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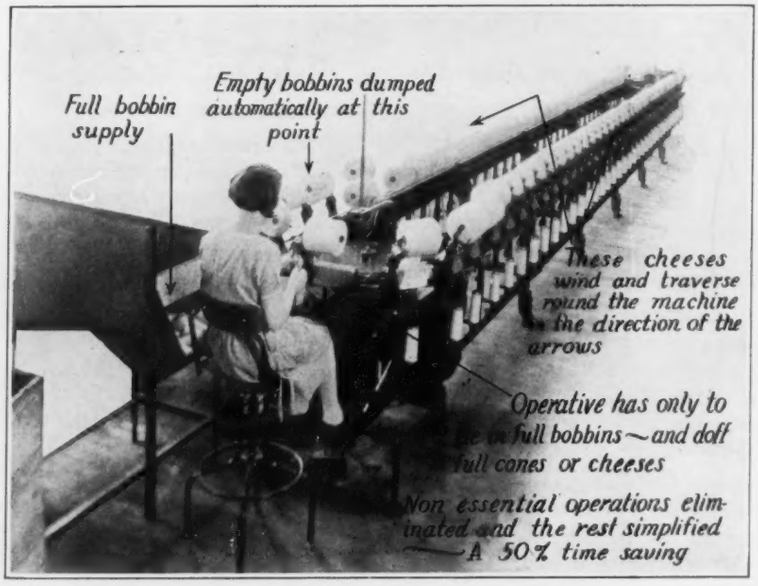
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3,624 ends, including selvage ends, will measure exactly 43.11 inches spread of harness. So,

3,624 (ends in warp) — 24 (selvage ends) = 3,600 ends that require one heddle. 3,600 ends that require one heddle + 24 selvage ends requiring one heddle for two ends equals 3,612 heddles required on 43.11-inch spread of harness.

Assuming that a harness 46 inches long is being used.

$$\frac{3612 \times 46 \text{ inches}}{43.11} = 3{,}853 \text{ heddles in 46 inches.}$$

This being an odd number, drop one and call it 3,852 heddles, or eyes, in a 46-inch harness.

If single harnesses are to be used, divide 3,852 by two which gives 1,926 eyes per harness.

1,926 (eyes per harness) ÷ 46 inches (length of harness) = 41.87 eyes per inch on each harness.

If harness are to be in tandem, that is, two hooked up to form a single harness, use the following method:

$$\frac{3852 \text{ (total eyes)}}{4} = 963 \text{ eyes in each 46-inch harness.}$$

963 (eyes in each harness) ÷ 46 = 20.93 eyes per inch of harness.

Total inches of harnesses divided into total eyes of harnesses will give total eyes per inch of harness.

$$\frac{3852 \text{ (total eyes of harnesses)}}{46 \text{ inches (length of harness)}} = 83.73 + \text{ eyes per inch.}$$

So the harness eyes per inch on a 90 sley cloth, no matter what width, will be 83.74 eyes.

CHRISTY (MASS.).

EDITOR COTTON:

In reply to "CONTRIBUTOR No. 4037," who asks for a method to use in figuring the eyes per inch in harness when weaving a 37-inch broadcloth, 5350 ends, 144 ends per inch in sley and using six harness.

I am assuming that the 37 inches is reed width and the procedure is as follows: Allowing 22 ends for selvage if the drawing is regular as in a plain or twill fabric, not fancies, then the counts of harness must be the same as the reed. Often in practice harness of finer counts than the reed are used, then a certain number of eyes must be left out and is called "casting out"—this must be done in a regular manner.

For the warp given the counts of reed is 144, so the counts of harness will be 144 eyes per inch divided by 6 shafts. This will give 6 shafts of 24s counts, viz — 24 eyes per inch 37 inches wide, or 888 eyes on each shaft. Example: 144 ÷ 6 = 24 × 37 = 388.

Another example is a plain warp 36 inches wide in the reed, 2180 ends and allowing 20 ends on each side for selvage, 2 ends as one, 60s reed 2 ends in a dent. The formula is as follows:

2180 — 20 = 2160 eyes.

2160 ÷ 4 harness = 540 eyes on each shaft.

540 ÷ 36 inches = 15 eyes per inch or 15s counts.

For fancies the harness is best suited for weaving when knitted to pattern required and the desired draft, number of ends, width, etc., are sent to the makers.

In casting out, the following example is typical and must be calculated and not done haphazard. Suppose for a 5 end sateen set 80s counts is required for a 70s reed. 80 — 70 = 10, thus, 10 eyes per inch will have to be cast out. Two rows of healds may be cast out every inch or one row every half inch.

If a cast out is not complete in rows per inch, such intervals should be found that will give an equal distribution. The strain that will be put onto the warp ends near the cast out must be considered. If too many are cast out together bad weaving will result.

To find the cast out, take the number of healds per inch in a set to be used and subtract the healds required. The remainder will equal the number to be cast out. Next decide the most suitable order for casting out, full gaits over are preferable, mark the shafts with chalk for each cast out as a reminder and guide for casting out. It is also advisable to compare the position of the threads in the reed and healds at intervals to see if the warp is straight.

C. W. (CANADA).

Causes of Shrinkage in Laundering.

EDITOR COTTON:

The question of what process or part of a process in cotton manufacturing that makes goods shrink after being woven or laundered as asked recently by one of your contributors, is an old one, but after all, a simple one, involving as it does conditions in all textile manufacturing where a loom or a knitting machine or even a felter comes into play.

I should say the first and most extensive shrinkage takes place in any fabric from the moment it is hit by water, because necessarily, the reeding is proportionately wider than the cloth is actually desired to be, the width in the reed depending on several conditions: (a) The nature of the weave; (b) The density of the fabric; and (c) The tension on the warp.

It then follows that we have a cloth of a gray width off of the loom, and this in turn is pulled down by brushing, singeing, rolling or folding, even if actually shipped gray.

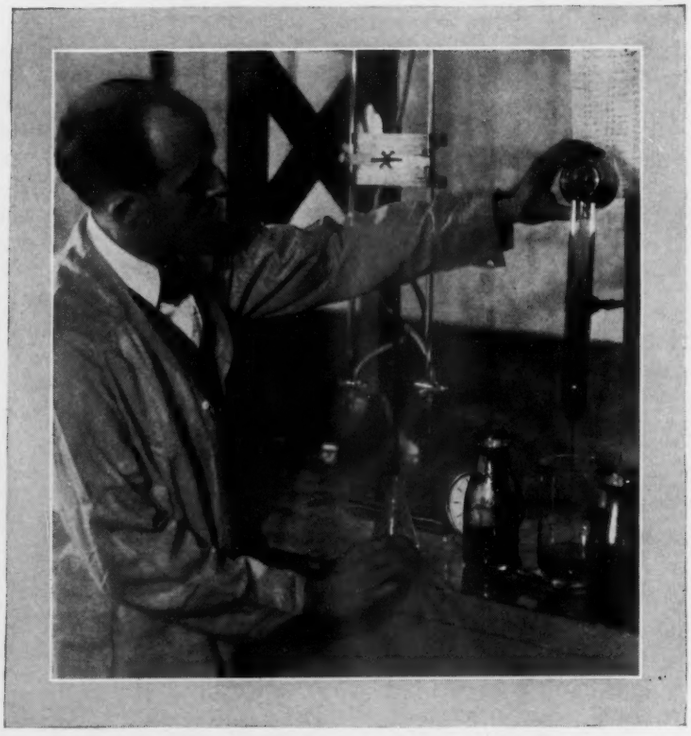
If goods are bleached, dyed, starched, napped or calendered, they will lose in width from the gray width off of the loom from 14 to 18 per cent, but there should be an increase in length of from 3 to 8 per cent, which is the reason that mills and bleacheries have resorted to pulley belt stretchers and tenter frames, but it is impossible to bring any cloth, after being wetted, back to the gray width off of the loom without endangering its strength or appearance.

It should be observed here that the direct answer to your correspondent's query should be that the wetting of the goods is the sole actual cause of the shrinkage about which he inquires, because cloth width as it leaves the loom is necessarily looser than bleached or finished goods will be.

This applies in the order named, so far as shrinkage is concerned, to woolens, worsteds, cottons, linens, jutes, grass fibers, such as ramie or China grass, and silk, whether cloth is woven or knit.

Perhaps I should mention, in closing, that an added shrinkage, and by no means small at that, is accen-

The Magic Formula



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tuated by bleaching agents, particularly caustic soda.

I trust this will help your correspondent, but if he desires actual shrinkage from approximate styles of goods, I will be glad to endeavor to supply this information on a proportionate basis if he will send samples of his fabric or furnish the details of them.

This is truly an interesting subject that might well lead to all of us getting some excellent data apart from rule of thumb in such matters.

CONTRIBUTOR NO. 4135.

Causes of Soft Places in Hosiery Yarn.

EDITOR COTTON:

In response to the question of "C. J. L. (TENN.)" with reference to soft places in 8s and 9s hosiery yarn. He says he is making this from 7/8-inch stock, on a 2-inch ring and with a twist multiple of 3.25, front roll speed of 188 r.p.m., using a 2.00-hank roving, and says his yarn pulls apart at soft places.

It seems to me as though his yarn must lack twist in the soft places. If this is a general condition throughout his yarn, it would seem to indicate that it is probably a condition previous to spinning and not a source of difficulty as to a particular block of frames. It seems to me that with a normal layout, using 7/8-inch cotton, with a twist multiple of 3.25 on a 2-inch ring, he would be able to produce a yarn sufficient to meet his customers' requirements.

If I were he, I would make certain that I was getting an even roving. Everyone knows that twist runs first to the thin spots, or to the uneven places in the yarn. This leaves the thicker or heavier places with less twist and perhaps his difficulty could be overcome by improving the evenness of the roving from the card room.

Another factor worth considering is the question of roll weighting; first, in the spinning room and also on other operations in the card room. When one is spinning such coarse counts as 8s and 9s, insufficient pressure on the rolls may allow the stock to come through unevenly at some process or other, resulting in an uneven yarn with uneven twist.

I also believe that he should make sure that he has sufficient twist in his roving to permit its running in the spinning creel without stretching. Oftentimes one tooth of twist in the roving will prevent stretched roving at the speeders and also in the spinning creels, resulting in improved running in the spinning with better breaking strength.

Then there is the factor of slack twist in the spinning, due to the spindle not being properly oiled and running at the proper speed, slack bands, etc. If for any reason the spindles tend to fall under the standard speed, this tends to reduce the amount of twist inserted.

I believe that "C. J. L's" problem is really one of weak yarn, rather than soft places. In this way it can only be answered with a number of statements, and I do not see how one could give him a definite reply. He may also consider it from the point of view of cut yarn, which may be a part of this trouble. He should check up and make certain that all of his gears are okeh, with no slippage or skipping, and that his draft gears at all processes are set correctly and that the first gears are right for the constants. He should make certain that his cotton mix is kept up, and if he is reworking roving waste, he should see that too much is not put in at one time.

If he is winding on Foster cones, he should make certain that he is getting no cut yarn at the winder, as this might be a source of trouble.

I rather imagine his yarn is all properly conditioned after spinning as this improves the quality of higher breaking strength.

J. H. (R. I.)

EDITOR COTTON:

In reply to the question of "C. J. L. (TENN.)" with reference to soft places appearing in 8s and 9s hosiery yarn, will say that he did not give very much information from which to work.

He did not state whether he was using single or double roving. This is very important, for I don't think he would be able to make very good 8s or 9s out of 2.00-hank single roving. I will take it for granted that he is using double roving and try to explain some of the things that would cause these soft places.

This trouble could be caused from cut roving, bad rolls on the fly frames, uneven roving and other things in the card room.

We will assume that the roving is perfect, and all the trouble is in the spinning. A roll speed of 188 r.p.m., which he is using, is a little high for old frames; however, he does not state whether the frames are new or old. On the roll speed he is running I am inclined to think that his rolls are not doing what they should do. It may be that his roll weights are too light; if they are not heavy enough it will cause soft places in the yarn. I would suggest that he clean and scour all his rolls. If there are any chokes in his leather rolls, or any laps on the steel rolls, this will make weak places in the yarn.

I would suggest also that he cut his front roll speed to 176 r.p.m.; this is about 95 per cent of book speed. I believe that he would get a much better yarn and about the same production he is getting now.

If his roving is good and his rolls are good, and also clean, I would suggest that he try a little more weight on the rolls. At the rate he is running his rolls they should have plenty of weight to keep them from bouncing or dragging, as this will also cause the trouble he is having.

A. E. S. (GA.)

EDITOR COTTON:

In your January number, "C. J. L. (TENN.)" wants to know what will prevent soft places in the yarn. I have been up against the same problem for years, and he can take my word for it, that he too is up against a tough proposition.

Coarse yarn has little twist at best, and when it is soft twist yarn, I sometimes doubt whether it has any at all. Naturally, what twist there is, runs to the thin places, and in this case there isn't any twist left over for the thick places. Of course I know that we are not supposed to have thick and thin places, but we do.

I have argued and worked on that trouble for a

1 **By reducing the number of duties each operator performs, "Two things are accomplished."**

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b—His output increases in proportion to his increased skill.

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b—The workman is provided with two worthwhile incentives; pride in his work, and the possibility of greater earnings.

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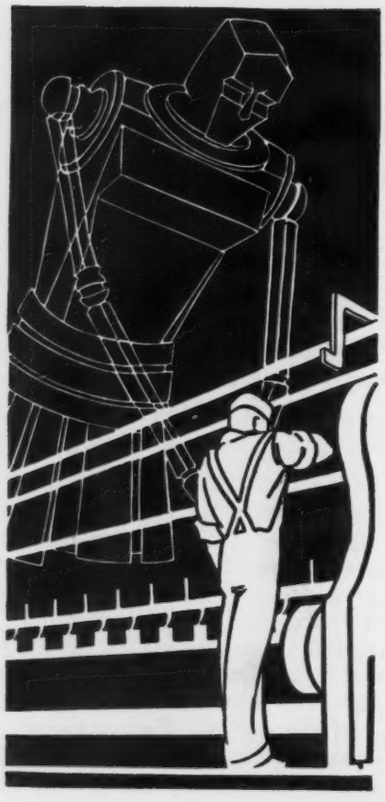

The three laws stated above are universal in their application. They apply to a cotton mill, to a weave room, or to a spinning room.

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long time and have tried everything that anybody could think of, including the speeding up of the middle roll, and I think the thing that has done the most good was to turn the back saddle around, to put more weight on the middle roll. These thick places are, to a certain extent, undrawn places, and the only way to draw them out is to add weight to the middle roll so as to hold the sliver at that point while the front roll pulls it out. The back saddle is made so as to distribute the weight between the middle and back rolls, but if it is turned around, it will put more weight on the middle roll than it had before, and this has been a great help in our case.

If "C. J. L." has a setting closer than the length of the staple so that the sliver is supposed to slide under the middle roll, he cannot do this, but if he will make the setting as close as possible for the length of staple without making cockled yarn, and then turn the back saddle around, it might help him. At least, it has helped me, and I offer it in the hope that he will get out of the trouble easier than I did.

CONTRIBUTOR NO. 4143.

A Simple Formula for Figuring Capacity of Beams, Etc.

EDITOR COTTON:

I give below a formula which I have found to be very useful in certain mill calculations, particularly in estimating the capacity of section and loom beams. I hope none of your readers will be confused by it, because it is really a very simple thing. The formula is:

$(D^2 - d^2) \times L \times .7854 =$ cubic inches in beam.

D = Diameter of head of beam in inches
d = Diameter of barrel of beam in inches
L = Length of beam between heads in inches

Let us assume that it is desired to use this formula in finding the capacity of a section beam. By looking around the room where full section beams are stored, we find a beam with 26-inch heads, and from the warp ticket we observe that it contains 438 pounds of yarn. We also observe that the beam is filled up to the full diameter with yarn. Using our formula: D = 26 inches; d = 10 inches; L = 54.25 inches. Therefore:

$(26^2 - 10^2) \times 54.25 \times .7854 =$
$(686 - 100) \times 54.25 \times .7854 = 24{,}542$ cubic inches in beam.

$24{,}542 \div 438 = 56$ cubic inches per pound.

Having found the number of cubic inches per pound of warped yarn, it is now possible to calculate accurately the capacity of any size beam. The formula then becomes:

$$\frac{(D^2 - d^2) \times L \times .7854}{56} = \text{Pounds per beam.}$$

Since practically all section beams are 54¼ inches long, we can simplify this formula by eliminating all but one constant. The formula for section beams then becomes:

$(D^2 - d^2) \times .76 =$ Pounds per section beam.

In some cases, it is desirable to know the number of yards a beam will hold of a given count and number of ends, without having to figure first the capacity of the beam in pounds. Another variation of this formula is:

$$(D^2 - d^2) \times .76 = \frac{\text{Yards} \times \text{Ends}}{840 \times \text{Yarn No.}}$$

and this gives us a constant of 638, which is used in the following calculation:

$$\frac{(D^2 - d^2) \times 638 \times \text{Yarn No.}}{\text{No. of ends}} = \text{Yards per beam.}$$

As an illustration of the use of this formula, suppose that we want to know the number of yards of 20s yarn that can be warped on a beam with 28-inch heads and a 10-inch barrel, running 400 ends. Then:

$$\frac{(28^2 - 10^2) \times 638 \times 20}{400} = 21{,}819 \text{ yards.}$$

This would mean that we would warp seven *wraps* of 3,000 yards each, or six *wraps* if the measuring attachment happens to be geared to 3,500 yard *wraps*.

The original formula, $(D^2 - d^2) \times L \times .7854 =$ cubic inches, can also be used to very good advantage in the weave room. The number of cubic inches per pound should first be calculated for sized yarn, as was done in the case of warped raw yarn, by taking the net weight of yarn on a full beam of known size and proceeding exactly as was done with the section beam calculations. Let us assume that it is found that sized yarn runs 60 cubic inches per pound.

As an illustration of the use of this formula, suppose that we want to know how many cuts of 64 yards each can be put on a loom beam with 18-inch heads and a 6-inch barrel, 42 inches between heads, on 20s yarn, 2,600 ends.

$$\frac{(18^2 - 6^2) \times 42 \times .7854}{60} = \frac{2{,}600 \times \text{No. of yards}}{20 \times 840}$$

$$\frac{288 \times 42 \times .7854 \times 20 \times 840}{60 \times 2{,}600} = 1{,}303 \text{ yards.}$$

$1{,}303 \div 64 = 20+$ cuts, capacity of beam.

Another illustration of the use of this formula in the weave room is in estimating the number of yards of warp on loom beams in taking inventory, or in cases where warps have been cut out of the looms and returned to the warper room for any reason.

Suppose that a warp of 3,000 ends of 20s yarn on a beam 42 inches between the heads has been cut out of a loom, and it is desired to know how many yards or cuts remain on the beam. We measure the diameter of the yarn on the beam and find it to be 14 inches. We shall assume that the number of cubic inches per pound has been found to be 60, and that the diameter of the loom beam barrel is 6 inches.

By making the proper substitutions in our formula, it becomes:

$$\frac{(14^2 - 6^2) \times 42 \times .7854 \times 20 \times 840}{60 \times 3{,}000} = 492 \text{ yards}$$

$492 \div 64 = 7.7$ cuts.

The foregoing are some of the most common uses to which this formula can be put. It can be used also in figuring the capacities of spools, bobbins, and almost any kind of yarn container.

F. K. (GA.)

A Carder Thanks "Old-Timer."

EDITOR COTTON:

Please allow me space to tell you of the great benefit that I receive from COTTON, having been a reader for some years, and especially the articles by "OLD TIMER".

I am a mill man, and have worked hard to get to the top of the ladder. My education is limited, which, as you know, is a handicap to a man in this line of work today. However, I have studied hard, and as the old saying goes, I have "burned the midnight oil" trying to advance myself and increase my efficiency in handling my job. I have managed to succeed by reading and trying to follow the many good suggestions given by "OLD TIMER" to the mill boys, those who aspire to jobs as overseers of carding, etc. I have worked up from a sweeper boy to the position of overseer of carding. I am proud that I have succeeded in rising this high, and I am still studying and trying to get higher.

I have held my present position, as overseer of carding, for nine years. It seems a long time to stay on one job, but looking at it on the other hand, I must have been giving satisfaction, in other words, running the job successfully, or they would have gotten another man. I believe that I can run the job just as well as the other fellow, and I keep after the things that it takes to make a successful overseer. That is where the advice of "OLD TIMER" often helps me out in the tight places. I do not know who he is or where he is located, but I certainly wish that I could have been with a man like him while I was trying to work myself up in the mill, or, still better, would like to be with him now. As the old saying goes, "You can't hold a good man down," and I sincerely wish "OLD TIMER" success in his work, and can assure him that I will always be reading his article each month in COTTON.

Y. C. (S. C.)

End Breakage Tests on High Speed Warpers.

EDITOR COTTON:

In a recent issue of COTTON, "H. H. (N. C.)", presented a test of end breakage on 13 warpers for 11 hours. This test is very interesting to me as end breakage on our warpers is an item I watch very closely.

"H. H." wants to hear from others who have run tests so that he can compare end breakage, and also the forms used to record these tests.

We have always kept a daily record of the stops on each warper and every beam run, and with the installation of automatic spoolers and high speed warpers in our mill we adopted a form for recording the stops and their causes which was recommended by the manufacturer of the spoolers and warpers. The form shown herewith gives the record of the stops and their causes for two days. The 22s averaged 21.96s and broke at 83 pounds.

At the end of each week these records are collected and the stops for each cause totaled at the foot of the column. These records are very helpful to the

DAILY WARPER REPORT

DATE

MILL LOCATION DAILY REPORT ON Beam WARPER NO. 1

NO. ENDS See "Remarks" YARN NO. 22s YARDS 14,000 Y. P. M. 530

	BEAM NUMBER	BREAKS DUE TO: PIECE-UP	WILD YARN	WEAK THREAD	BAD KNOT	LINT ON GUIDE WIRES	CUT CHEESE	CHEESE RAN OUT	COBWEB CHEESE	TANGLED CHEESE	DOUBTFUL	TOTAL	STOPS NO CAUSE	FAILED TO STOP	START	STOP	TIME	REMARKS
	1			////						1		6			7:10	8:05	55	358 ends
	2			////			1	1				6	1		8:25	9:25	60	358 "
Wednesday	3			//								2			9:40	10:30	50	358 "
	4			///					1		1	5			10:55	11:55	60	358 "
	5			////				1		1		7	1		1:35	2:40	65	378 "
	6			////								6			3:05	4:05	60	378 "
X	7			///			1	1				5	4		4:30	5:25	55	378 "
	8			////								5			7:05	8:05	60	378 "
	9			///				1				4			8:30	9:25	55	378 "
	10			////			11					6			9:55	10:55	60	378 "
Thursday	11			///						1		4	1		11:20 1:00	12:00 1:15	55	378 "
	12			////								5			1:45	2:45	60	378 "
	13			//				1				3			3:10	4:05	55	358 "

SIGNATURE

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The Average Bobbin

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man in charge of the spooling and warping and to the overseer of spinning. For instance, if the stops from tangled cheeses or cut cheeses should suddenly mount up, a movement would be made in the right direction to stop this excessive stoppage. Likewise, if the stops from weak threads should increase rapidly over a period of two or three days the overseer of spinning would be informed. It being expected that he will inaugurate a search for the cause and find something, that when remedied, will eliminate this evil substantially.

At times the overseer of weaving will complain that on certain warps the loom-stops from ends snapping or breaking is excessive. By tracing through the records, from the warp ticket back to the daily warper report, the cause can usually be easily ascertained. That is, if it is found that the section beams making up the warps in question stopped frequently on the warper from weak threads, it can be assumed that this is the cause of the weaver's trouble. If the stops from weak thread were not unusual the overseer can look elsewhere. He can look at his slashers and see if the tenders are manipulating the yarn improperly while it is in their care.

While spooling, warping and slashing are no more important than other processes, a whole lot can be done in these departments to make or break a mill. Perhaps it is because men of experience are reluctant when it comes to giving information on this subject that we have heard comparatively little about it. However, I am looking forward to reading more about this in the "HOW OTHER MEN MANAGE" department in the future.

CONTRIBUTOR NO. 4284.

Some Simple Twist Constants.

EDITOR COTTON:

I will give in this letter some hints and suggestions as to how to get at a workable twist constant on any machine in a mill, regardless of whether it is a fly frame, speeder, jack frame, a spinning frame, or a twister.

First, take a sample of yarn or roving, preferably about six inches long, to a twist tester. Untwist this yarn until you can see no twist at all. Untwist it to a sliver. Count the number of turns it requires to do this, and divide it by six. This will give the number of turns per inch.

Second, take the number of turns per inch and multiply by the twist gear used in making the yarn tested. This will give a good, practical, workable constant. As an example, suppose we had 16-hank roving, and found that it contained 4.8 turns to the inch. Suppose we used a 65-tooth twist gear to make this yarn. Then, $4.8 \times 65 = 312$, which is the constant.

If a mill does not have a twist tester, a good practical way to get the twist per inch is to stop the frame off, then get some black oil and mark the roving directly under the leather roll. Turn the speeder slowly with your hand, until the black oil reaches the eye of the flyer, counting all the time, the number of times the flyer turns, of course. As an example, suppose that it is 14 inches from the center of the leather roll to the flyer eye. Suppose the flyer turns 58.8 times while the black mark travels from the roll to the eye of the flyer. Then $58.8 \div 14 = 4.2$ turns per inch.

N. B. (N. C.)

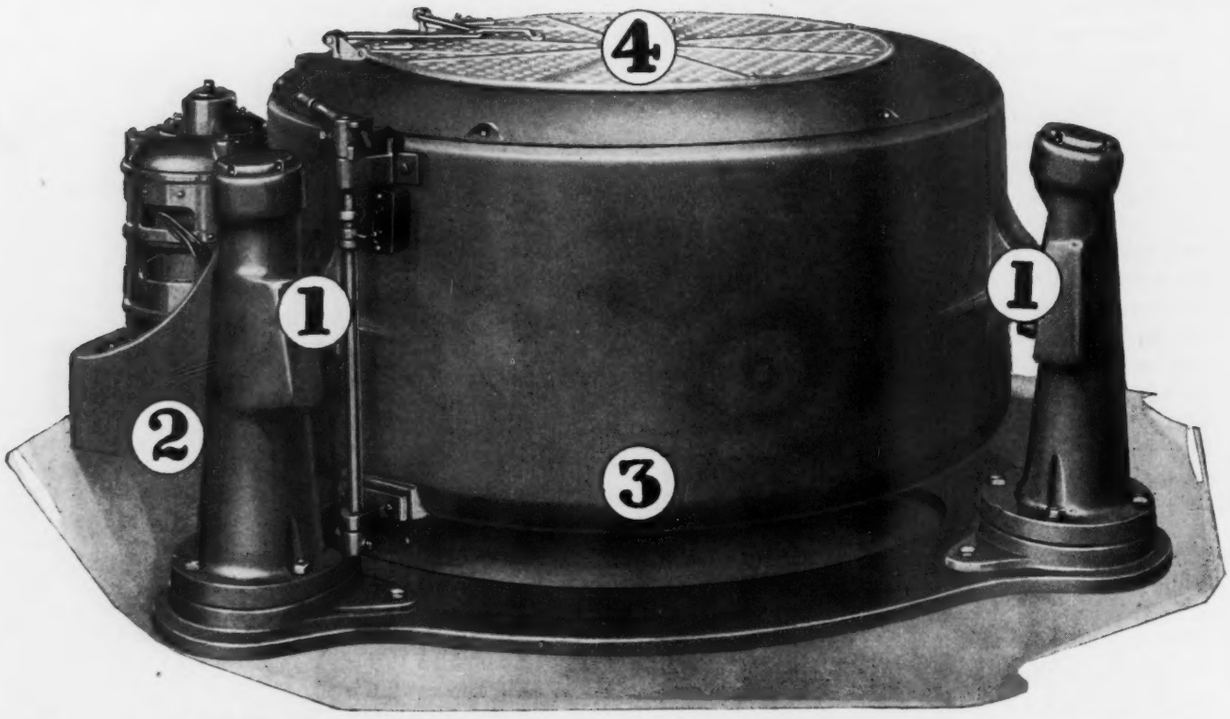
Some Results of the Textile Exposition.

EDITOR COTTON:

The Eighth Southern Textile Show is over and the building is deserted by the mill men for another two years. I am sure that the show will continue to live on the memory of the mill men who were fortunate enough to be able to go. I know that I came home with a better appreciation of the mill and the machinery in it. It may be that I was more open to see the points the machine men were bringing out than I have been before. I do know that I have a better appreciation of the things that go on in the mill and I have done a lot of checking up on the various processes since I came home.

I went out to the opening room early one morning to see how things were going out there, and had quite a jolly time with the boys, in a friendly way. I noticed that the cotton was not being taken from the bales in equal amounts. I explained that the cotton was bought and graded for a certain blend, and if the cotton was not fed in equal portions from each bale we would not get it. Of course, they were only too glad to help out when they saw the point. The burlap on one of the bales was ragged and when taken off some of the fragments remained on the bale. When these were about to be taken up and fed into the hopper I asked the hand if he knew what would happen if they got into the work in the mill. Of course he did not, for this class of help are not experienced in the mill, and was honest enough to say so. I told him just what the little fiber in the burlap would do in the mill along with the fibers of cotton; some of it would fall out in the various machines as it worked its way through the mill and some of it would go on through and affect the appearance of the finished goods. There was one bale that had been sitting in water or water had dripped on the bale. I said, "What do you do with a bale like that"? He said that sometimes they picked the crusty part off the bale and sometimes they let it go. I told him to take the crusty part off the bale and let it dry out, we could then pick the good cotton off and let the rest go to waste. I also told him that he should clean out from under his machine twice each day because it would help to keep the dirt and grit from getting back into the work.

I next went to the picker room, still thinking of the things I had learned at the Greenville Show. I was taking on new life and feeling fresher than ever, matching my wits with the things I learned at the show, I felt as if I was taking over a new job. It was a treat to watch the automatic conveyor feeding into the breaker hoppers. It seemed to be saying, "I am doing my part", and I thought to myself, "Now I am getting an even lap from this distribution of cotton." The soft white waste was being mixed in evenly and gradually during the day. The cotton, be-



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ing run through two horizontal cleaners in tandem, was well cleaned. The eveners on the pickers were working nicely.

I noticed that occasionally the picker hand was not as careful as he should have been when putting full laps on the aprons, but he did take a pride in putting the full laps in next to the eveners, or beaters. The hands make an effort to put the laps on the pickers in this manner, counting the lap next to the beater as number one, full laps at stands number one and three, and half laps at stands number two and four. By creeling the pickers in this manner the evener motions have a chance to operate most efficiently.

In removing the waste, or motes, from under the pickers, I noticed that too much white cotton was being thrown out by some of the pickers. We soon got this fixed up so that only the waste we wanted taken out of the work was being removed. We next checked the screens and leathers. Some of the leathers had worn so badly that air was leaking through with some good cotton. And to think that I had been happy in knowing that everything was in first class shape. The weights on the finishers were fairly good, though I found that they were not breaking easily enough and needed some attention as to the oiling and cleaning up. Frankly, I do not know whether this made any great amount of difference, but they did demand some attention. (I mean the scales and piano motions were breaking slowly.)

The next thing I checked was the cleaning and oiling. We have ball bearings on the beaters, fans and aprons, and there was not so very much to oil. I noticed on the beater casings on the inside of the beater caps that the ball bearing grease was being pumped through on the inside of the beater casing. The cotton was being slightly stained by the grease as it passed through the picker. This becomes dangerous when the cotton passes through the card as a coating of oil on the wire of the clothing will be formed, dust and cotton will cling to the oily clothing and form a ring around the cylinder, then the cotton will come off the cylinder at intervals and show up in the work as "chewed-up" cotton. This is very objectionable in both yarn and cloth. In connection with this oily stock, the manner in which the white cotton is cared for when it falls on the floor is important. White cotton should not stay on the floor any longer than it takes the operative to pick it up. All oil spots should be mopped up as soon as they form on the floor.

When I walked into the card room I saw, much to my sorrow, a full can fall from the card onto the floor belching sliver everywhere, due to the can being full. Here was a waste that should have been prevented. Not only was part of the sliver tangled so badly that it had to be put back into the waste, but the card was making more waste all the time the can was on the floor. This also meant more work for the drawing tender as it had to be straightened out before it could be run. When the cans are allowed to run too full it will tend to stretch the sliver and will cause a serious strain on the mechanism in the coiler head. Things can start here that will give trouble all the way through the finishing plant.

The piecing of the laps was good when he went to put in a new one when the old one was running out. As Old-Timer told Jim, "See if you can put one in that will beat it, it is not so easy when you try." Right here let me say that Old-Timer has been putting out some mighty practical stuff lately, and if Jim doesn't watch his step he will be "caught out" some more.

Next I noticed another dangerous place that we all have knowledge of, but it is done so little that we lose all sight of it, and that is the clearer on the back of the card over the licker-in and feed rollers. When cleaning this roller it is very easy to let some of this fly fall onto the lap feeding into the card. If this is done, it means that we are feeding short staple cotton into the card, and short staple means weak yarn, for shedding of any kind means weaker yarn than the regular stock being run. Do not let it get into the regular stock for if it had been any good it would have stayed in the good stock instead of being blown out.

In the stripping of cards where the hand method is used, care must be taken to see that the feed is cut out while the doffer is running. If the feed rolls are feeding cotton at the same time the card is being stripped a lot of good stock is being wasted. Before a card is stripped the feed should be cut out in time to have all good cotton, as far as possible, off the cylinder and doffer. The stripper should see that the cylinder and doffer are both stripped clean before he goes to the next card. One good thing about the vacuum stripper is that if the cylinder and doffer are not clean, or if the wire is hooked, rusty or otherwise in bad condition, it will surely show up in the condition of the fillet. If the conditions are bad the card will have to be stripped out again and the fillet ground and burnished so that it will shed the cotton easily, if not, nebs will be made in the work. Stripping of the cards is one of the most delicate operations in the mill; it is in the cards and pickers that the work is prepared for the rest of the processes in the mill and we must guard our treasures carefully. We can very well get by on the other machines by "humoring" them in regard to twist and speeds, but on the cards and pickers we must use our very best efforts, and most of the time they are none too good. Most of the mills will buy a little short on staple instead of too long, because it is some cheaper. I know that it is going to do very little good to complain about the stock, so I just set the machines to the best of my ability and run it.

That reminds me of a little incident that happened back in 1903 when I was working as assistant overseer of carding. We had some off-grade stock the overseer made a very strong protest against. The boss said, "Say, do you know what my boss said once to me when he had some off grades?" "No", said the overseer. "Well", said the boss, "I was told that if I couldn't run it somebody else could." Since hearing that conversation I have made no complaint, but have done the best I could. I know that the cotton buyers are only human and try to do the best they can. When they do get caught with off grades in the market, co-

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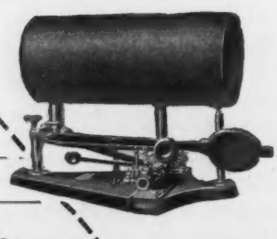

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SYSTEM

operate with them and do not kick. Cooperation is the grandest thing in industry—in anything else for that matter. When I think that things are going against me I think of what a poet once said, "He is the most progressive man who makes the best of getting the worst of it."

I wish to apologize for wandering off my story of the things that inspired me at the Textile Show, but it may be that after all I am arriving at the progressive points of the textile industry.

While in the card room it happened that one of the grinders was just getting a card ready to grind. This he does by cutting out the feed and letting the card run empty and brushing out the fillets, etc. Each grinder sets the grinding rolls on the card the way he has been taught, and the settings are many and varied. I believe that the rolls should be pulled down on both the cylinder and doffer until a steady stream of sparks are being sent forth across the whole width of the cylinder and doffer. When the wire is ground down so that no more sparks are coming from the wire the card should be ready for setting up. During the grinding of the card the oil holes should be cleaned out. The card should be oiled with a good grade of non-fluid oil, one that will not flow out of the bearings and into places where it is not needed or wanted, but will still flow freely, should be used.

The card grinder should clean and oil each card every time it is ground. The average grinder gets around and grinds and re-sets his cards about once every thirty days, and if he oils them correctly they will not suffer for oil before he gets around again.

The various settings of cards vary so much that I am not going to go into them. However, I will say that we are using a 10½-ounce lap making a 45-grain sliver with a doffer speed of 10 r. p. m. The setting of the comb is such that the sliver will not be stretched as it is passing to the calender rolls to be condensed for the coiler head. We allow it to "waver" just a bit as if there was a slight current of air, this gives it an appearance of not being in a hurry to get to the coiler head. This does much to keep the sliver from being stretched.

We too often think, "What's the use, the Big Boss is in Boston, or in New York, and he doesn't come down every month or doesn't know much about running the mill." The radio, flying machines and telephones have brought all of us closer together, and helps us to understand each other's problems better. Magazines such as COTTON through its "HOW OTHER MEN MANAGE" columns have informed the executives of the problems we have in running their mills for them. They are more reasonable in considering our problems, and understanding the mechanical side of the cotton mill industry. We must have a good per cent of production and a good percentage of first quality cloth. CONTRIBUTOR NO. 14.

New W. A. Jones Catalog.

W. A. Jones Foundry & Machine Co., Chicago, Ill., manufacturers of speed reducers, cut gears, pulleys and general power transmission machinery, have issued a new general catalog known as the Jones Blue Book, Catalog No. 42. The book contains nearly 500 pages, and gives a complete listing of the company's lines, together with practical data of everyday usefulness.

More About Even Twist.

EDITOR COTTON:

In the January issue of COTTON we were treated to a little discussion on even twist, by our friend, "CONTRIBUTOR NO. 4022," which in general was very interesting, and, which, by the way, gave me a little inspiration to delve more deeply into this subject of obtaining an evenly twisted yarn.

As our friend informs us, there are many things which obstruct the path to the attainment of balanced twist, but apart from seeking the cooperation of the farmer who should grow his cotton to suit our needs —the poor fellow has his troubles, too—I believe we ought to set out to attain the best results in evenly twisted yarn, at the very first process in the mill, and watch out for all those obstacles from there all the way through to spinning.

Before attempting to twist any of the fibers, our first aim should be to acquire a proper attenuation, and also parallelization, in addition to a freedom from all trash and other heavier impurities.

Hence, we start with a properly blended mixing in the breaker, and ascertain whether this machine is producing the best possible result in the form of a lap, that is, a sheet of cotton fairly clean and of a softer appearance than when in bulk.

Let us try to obtain evenness, as near as possible in these breaker laps, this being our first step toward even twisting. All screens, fans, feed rolls and fan drafts should be constantly reviewed and checked, not to mention the settings, which are of course all important, and should never be treated in a haphazard fashion, as at the breaker we aim at least to obtain a softness by breaking up the matted condition of the stock, as well as removing the heaviest impurities.

The proper adjustment of dampers and speeds of the fans play an important part in producing the even sheet by distributing the cotton in a loose condition upon the screens, which should be in proper shape in order to form that even sheet. Here I say, that before the forming of the first lap, the stock ought to be blown thoroughly, to obtain the softness previously mentioned, and by acquiring this softness or bloom, we are provided with the means to obtain a better finished lap. At the finisher pickers there are several kinks to take out of the chain of operations in order to secure that all important lap. That is, a lap which is even in ounces, yard for yard, with all the heaviest of impurities removed.

Here is where trouble begins. Of course we run four breaker laps on the apron of the finisher picker, but sometimes one, or may two run out, and the picker tender arrives possibly just in time to see them run out. Of course he hurries to throw fresh laps in the places of the missing ones before anybody sees the gaps, but did that evener motion rectify the picker tender's neglect?

Here we find quite a few obstacles to remove. Human failure, or neglect, and perhaps failure of the machine to function properly as designed. So at this point we should have the eveners, no matter what make or design, function satisfactorily, also the feed

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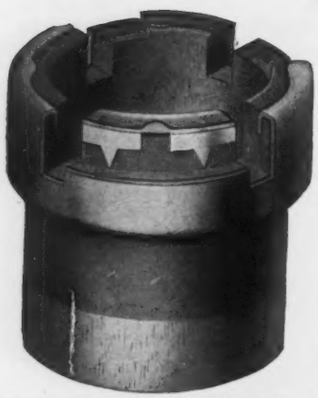

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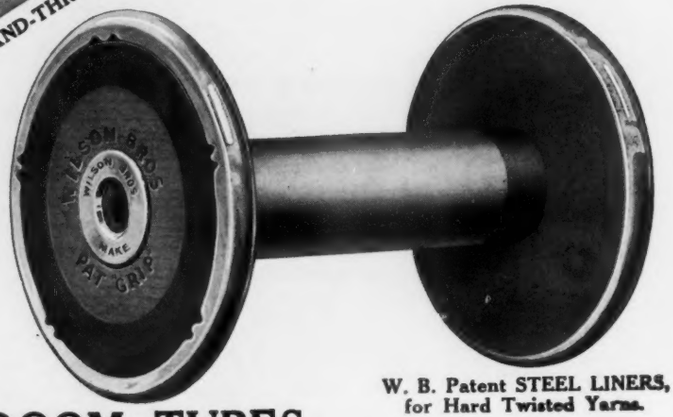

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and calender rolls running absolutely free, and, by the way, the latter are very apt to be deprived of their necessary drops of lubrication, and readers do take a tip from the writer: make sure that the oil gets down where it belongs. Recently one dry calender roll refused to run, and also smashed both lap "cheeks," and a rack in the bargain, because the oil could not get down to its neck through the oil tube. Of course the picker tender oiled it, but he did not clean out the tube, hence, the cause of many of our troubles.

Now, after securing a proper working of all the mechanism we should fix our attention on the picker tenders, and instruct these fellows, thereby acquainting them with the importance of their jobs and the necessity of first-class work and straightforward business in connection with the weighing of laps.

If there is more than one picker tender, each man could be made to use a certain crayon for his laps, and of course the supervision of the boss picker man comes into action occasionally by personally weighing some laps as a check on the help. Also, periodical sizing of the laps is essential, and by letting the help see this done they will keep more on the alert, expecting always to be detected if they should allow any too light or too heavy to go to the cards.

These men on the finishers ought to thoroughly understand that variation, to any extent, in the weight of laps, means variation in the weight of card slivers, and these cannot always be checked at the drawframes, especially when there happens to be several out of sizing running in one frame. However, the object is to keep the card slivers as even as possible in order to give the drawings a better chance to get results. Well, sure enough, we have our troubles at the cards, and there is plenty of room for checking at this process.

Of course perfect laps are a great asset in carding, but are those feed plates set at the same and proper distance to the licker-in the full width across, and are those licker-in teeth sharp and in good shape generally? Here we get a chance to straighten the fibers, and furthermore as they pass on to the cylinder and flats.

Of course there is little need to mention that all settings here should be up to concert pitch, but I may mention also that feed rolls of cards are sometimes neglected. They revolve very slowly, but give them a drop of oil at least once a week. Periodical setting, taking down and cleaning of backs, cleaning of screens, etc., ought to be strictly adhered to, in order to keep that picker lap transformed into a good clean, even sliver. When the cards are being stripped, this calls for tactful supervision of those in charge.

This job should be always started on schedule, at even periods as nearly as possible, and if at those set times the strippers have laps running out they should be assisted by the grinders, who can drop the laps and still watch the stripping.

The cards may be stripped at will, alternately, or otherwise, but cleanliness should be enforced, also the breaking of ends and the proper piecing up only when the card is properly loaded. Show those card tenders how to split and piece two slivers, and do not tolerate those hard wet piecings which are screwed, instead of

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Designed for the hardest use there is—for the wear and tear of the textile industry—Rockweave canvas products give extra service in *every* industry. That's why there was a sweeping demand for them from the start. The line was rapidly extended, and now there are Rockweave canvas baskets, trucks and hampers built for every purpose.

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Rockweave Mills

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being rolled. By piecing slivers properly—rolling back and forth—we tend to keep the fibers parallel, and this so far, is our aim, because a twisted or screwed piecing will not draw like a proper piecing.

The carder also, should enforce the cleaning of card fronts, especially around the ends of the doffer comb, as quite a quantity of singlings gets by here if this cleaning is neglected. The same thing occurs when a card tender lets a lap end almost go through and just manages to drop in another lap to catch part of the preceding end. Single occurs, but does the card hand break the end, pull out the single and piece up the sliver properly.

These things all count toward our aim for even twist, because we know that a light strand of roving will take twist more easily than a heavier one; hence, we see the result if light and heavy slivers are run together on the same frame. The proper average weight of sliver will be getting the average turns per inch, whereas, the lighter and heavier will vary respectively. Therefore, let us do everything necessary to obtain even card slivers for the breaker drawings.

Now let us assume that up to this time, we have produced perfect card slivers and are putting these through the first or breaker head of drawings.

One of these slivers becomes entangled when uncoiling, or through some other reason, and refuses to pass through the guide to the feed roll, and eventually breaks. Does that frame stop instantly? Sometimes it does not, but may a little later, but in case the damage has been done, hence a vigilant eye should always be kept on the knock-off or stop motions, and also, the operators on these machines should be trained to realize the importance of this, and in case of failure of the mechanism to act at any time, to immediately inform the man in charge.

Sometimes we find a drawing tender putting in a sliver improperly. One will break and the tender will take the sliver, start up the frame with one hand and try a "catch-as-catch-can" feat by throwing the sliver on to the others with the other hand. Often they fail to get this sliver in line and in its proper place, but of course still keep taking a shot with the frame running, and that one delivery is minus one sliver at the back. This game of course, is eliminated on frames which are equipped with electric stop motions. With the use of the latter, we have a far better chance of overcoming the evil of "singlings" at the sliver and ribbon lappers and combers. Nevertheless, there are times when a tender is careless in the matter of piecing up slivers and laps properly, which will help to cause that uneven strand into which we hope to first insert a little twist, namely, at the slubber.

Rolls at these aforementioned machines require strict supervision. At the draw frames, a lumpy or uneven sliver being delivered through a dry roll or rolls cannot always be detected at once, so it is always advisable to enforce the oiling of rolls at set times properly.

In the case of the metallic rolls, trouble of this nature is often caused by dirty flutes or serrations on the back roll or the one next to it, which prevents proper drafting through jumping. Maybe only slightly, but sufficient to cause trouble and upset our aim for evenly drawn finished sliver. Proper weighting is, of course, essential. By that, I mean that though the rolls are weighted by the proper weights, it sometimes occurs that when a tender has had the rolls out for some reason, he or she neglects, through carelessness or ignorance, to adjust the hooks as they were before, and it has, and perhaps it still does occur where a tender has replaced rolls, but in their wrong places.

Now on to the slubber, with what should be a well-drawn, clear and proper weight of sliver, either combed, or from the draw frame only, and as this is our first point for twist insertion, let us be sure to start correctly.

At this frame, various methods of putting in cans prevail, but whatever method is adopted, let us be assured of proper piecings first of all. Some slubber tenders are allowed to put in sets while the frame is running, and if this can be done without too much overlapping it is an advantage and saves many hard piecings.

So much for the back of the frame. Now, it always occurs to the writer, that most slubber tenders, nine out of every ten probably, when piecing-up an end to the rolls always have the bad habit of taking the roving from the bobbin the required length for piecing and—here is the trouble—before passing it down the flyer-tube will take it between the fingers of both hands and twist it, the idea of course, being to make it stronger so it will pass down the slot of the tube better. Say, there is not the slightest need for that, in fact, not only at the slubbers, but at the other roving frames. By doing that, these tenders are putting excessive twist into the roving, and furthermore, how many even after they have twisted about a half yard, will piece it up at the rolls properly? They cannot because it is too hard.

This proper method of piecing roving is one of our greatest problems in the mill, because as a rule, the help do not seem to grasp the idea that the proper way at least calls for less work, in addition to good roving for future processes.

A roving should be carefully, that is, loosely unwound from the bobbin, passed over the flyer and wrapped around the presser, the correct turns, without any extra twist being applied by the human hand. Then when piecing up at the roll, two motions only are required. Take the soft end of the roving between the finger and thumb and piece it to the likewise soft roving protruding from the front rolls, then with one roll with the finger and thumb holding the roving to the right and back again the piecing is complete. By this action we still tend to keep those fibers in the piecing straight, hence, a soft piecing which will pass easily through the rolls in future processes.

This idea of rolling the roving at the piecing, should be enforced also at the other frames, and also when creeling is being done, and roving should be pieced end-to-end, and not lapped-in, as is often the case if constant supervision and intuition is not practiced. Enforce these methods of piecing and note the result in the spinning.

Let us stick to these rules, and by all means, secure the utmost mechanical efficiency from our roving frames by proper roll settings, cleanliness and the use

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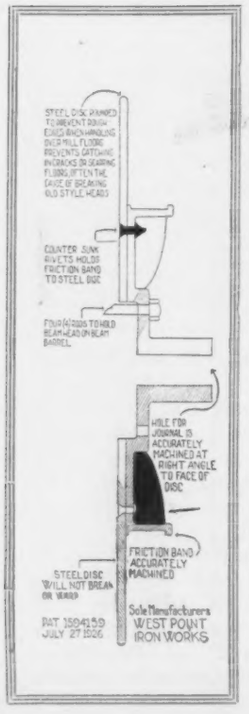
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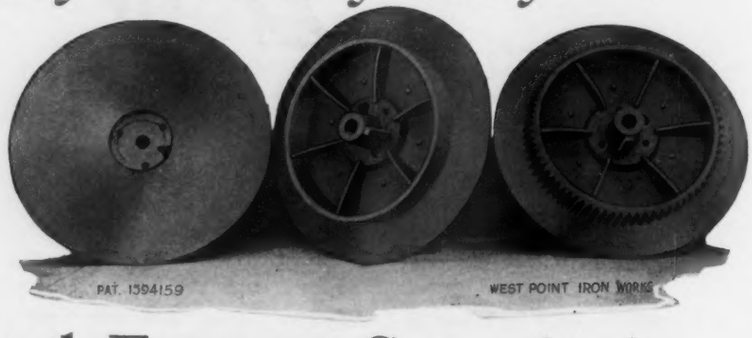

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Center hole for journal is tooled out (not reamed,) true machined at right angles to face of disk. The cast iron band, (choice of friction, gear or combination type) is also machined then given extra strength in the special structure supports.

The Etchison Head is the only one with rounded or beveled edge, prevents yarn cutting or breaking; will not chip or split, can not injure mill floors.

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Face of disk permanently surfaced with rust-resistant, glass smooth white enamel.

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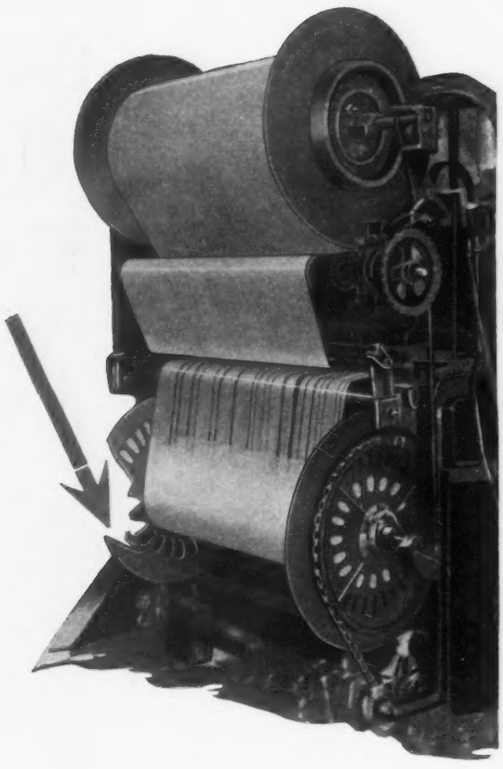

The cost of lost yarn would more than pay for the installation of a break-proof, Etchison Carbon Steel Head, the price of the wasted time would more than pay for many of them.

Figure the cost per hour of a tied up loom, the time and temper of men trying to salvage the yarn, the price of the wasted yarn, cut and torn and fouled.

How much did your mill lose on goods thrown into the "seconds" because of a shaky selvage? A warped by welding loom-head can spoil more goods and wipe out the season's profits.

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Gentlemen:

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We might mention that we began standardizing on your beam head in 1922 and since that time we have gradually replaced practically all of our cast iron heads. We find these heads well balanced and true and the problem of replacement has, we feel, been entirely eliminated as we are now using every head that we have purchased since 1922, not a single head being thrown out.

We gladly recommend this type steel beam head to any mill considering replacement."

West Point Iron Works,
West Point, Ga.
Dear Sirs:

"We have been using Etchison type steel beam heads for some time and find them very satisfactory in every particular. Before buying any quantity of these heads we experimented with them in comparison with our regular cast iron heads and found the steel heads of the Etchison type to stand up much better and to be more economical than the old cast iron type. For this reason we bought a large quantity of the Etchison type heads and will continue to buy them to replace cast iron heads."

Original copies of these and many other letters will be sent you on request.

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"The brown series for fall and winter have earned a place for spring and summer. The entire range of blues will be important. Yellow ranks high, and yellow red such as scarlet. Shades of orange are present in French styles."

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Gaston County equipment has solved the color problem for many textile mills.

The combination Beam and Package Dyeing machines give you the range and accuracy.

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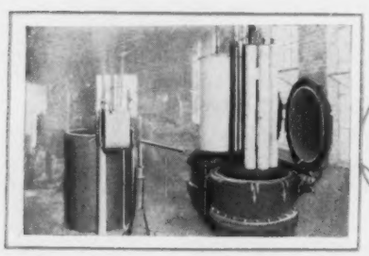

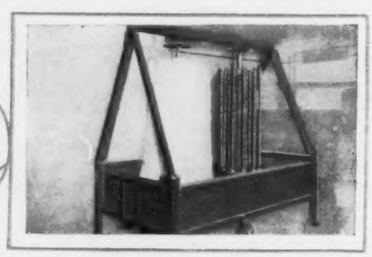

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of lubricants where they are needed—not on the floor. That is dangerous, as people are liable to slip, but if it gets where it belongs, then we get the parts of the machine slipping around which does not cause trouble, as does oil on the floor. However, up to now, I think I have outlined roughly, my idea of attaining that evenly twisted yarn, at least got so far as to produce the roving for that object.

In the spinning we have perhaps more obstacles to overcome in the way of spindle slippage, tape piecings being too long, or too thick and worn whirls, and sometimes these are dirty. Still, apart from these troubles, I think that the production of good roving in the way or a better one than I have dealt with in this letter, will solve to a very great extent many of our twist troubles.

D. E. (R. I.)

Some Kinks on Combing.

EDITOR COTTON:

In the following paragraphs it is my idea to discuss a few of the faults in connection with cotton combing. A good many questions concerning this subject have been asked in the past, but there have been very few answers.

Combing has three purposes, the first being to further clean the cotton; second, to remove a desired amount of short staple; third, to straighten the fibers in a more parallel form. The comber itself is not used with a view to producing an even sliver, although it is very desirable to have it so.

A good deal depends upon the preparatory machinery, namely, the sliver and ribbon lappers. A great deal of trouble can be avoided if the laps as presented to the combers are prepared correctly.

The principle of the sliver lapper or doubler, as it is more commonly called, is very simple. Most trouble is caused by carelessness, slack cleaning methods and mostly by not using oil at the proper places at the proper time.

Roll setting may vary according to the staple of cotton, although no set rule can be given. Too close a setting will cause the lap to cut, as also will a too wide setting. A setting which gives satisfaction is 2 inches front to middle and 2¼ inches middle to back roll. That should, under ordinary circumstances, give satisfaction. If not, it must be varied to suit. One should not make the mistake of setting close, as the rollers have a large bulk to handle. Also, care must be taken not to have the front roller too far from or too near to the calender rolls. 1½ inches from the calender roll stand to the front roller stand is about right. Care must be taken to see that the guides that guide the sides of the lap are set properly. If set too close, a ragged-edged lap will be the result, thus causing trouble in unwinding. Also, if they are set too wide, the edge will run down between the flanges and calender rolls; this also making a rough edged lap, equally hard to manage on the next process.

The drawing rolls of the doubler usually present more or less trouble. Metallic rolls are best, and if scoured well every month give very good satisfaction. The heavy weights needed to hold them, with a large bulk passing through, cause a great pressure on the bushings, and as a consequence, rolls need frequent re-necking. If the necks were case-hardened, it would help greatly. These rollers should, rightly, have ball bearings, and the trouble at this point would be ended.

The friction on the doubler gives but little trouble. If soft spongy laps start, it would be well to take the brake off and scrape it clean of all foreign particles. If this does not remedy it, one should look after the bobbins. If they are worn too short, trouble is bound to develop as the bobbin is held between the two flanges which are driven by friction. If the bobbin is too tight, the flanges rub the calender rolls, the bearings get hot and there is no cure at all except new bobbins. This applies doubly so to the ribbon lapper. Many mills today are penny-wise and pound-foolish, by insisting on the use of old worn bobbins when their use means the re-working of many hundred pounds of cotton in a year's time that has once cost them to be put through; also loss of that production.

The draft on this process should never be over 2, and preferably nearer 1½.

It is a mistake to run at too high a speed, fast enough to make four laps in the time the ribbon takes to run out four laps in the creel.

Only little need be said regarding the ribbon lapper. Most trouble is practically the same as that described previously. There are, however, a few things that may give much trouble.

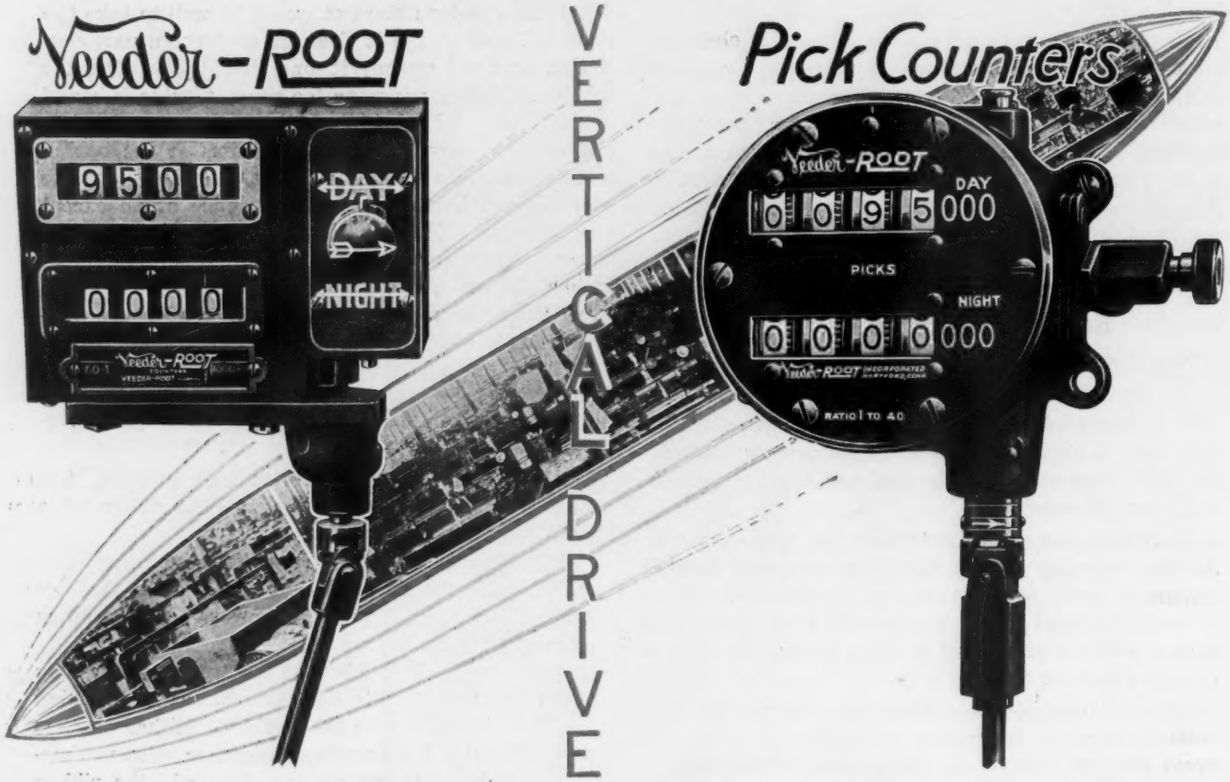
Occasionally the ribbon of cotton when passing around the curved plate has the appearance of being cut. This trouble is on the doubler. Either one has a flat top roller (this applies to leather rolls, not metallic) or the rolls are set too close. If the ribbon of cotton has a lumpy cut appearance on one side only, some one of the top rolls is not hooked up, or there are hooks of uneven length. If all four sheets have the lumpy cut appearance, probably one of the doubler weights is unhooked.

Soft laps are often encountered, especially when one is using harsh and wiry cotton, and then especially in Summer months. Under good running conditions, the weights on the lever should not require being at the end. With harsh cotton an extra weight may be required. Short spools are the biggest factor, and should be thrown away when encountered. A draft of 3½ is ideal. One should never go over 4.

Roll settings of 1½-inch front to second roll; 1⅝-inch, second to third, and 1¾-inch third to back, for 1¼-inch cotton, are very good on good cotton. Harsh, wiry cotton would require a wider setting as would longer staple. Continual breakage on the curved plate is proof of the rollers being set too close.

Much care should be taken in instructing hands on the care of frames. Strong points to insist on are: careful oiling of all parts, every morning (this does not mean to flood the machines. Just a few drops at the right place, at the right time, will keep the frames in good running order). Care in starting a new lap through (be sure no lumps pass through); keep fresh in the minds of the help that each bunch which passes through costs the mill a new half lap and top comb.

20 years of development·20 years of mill-service years of experience built into present-day



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The habit of placing four laps through at the same time should be broken. The overseer and comber man must insist that the laps be put in as they run out, thus maintaining evener work with less chance for a bunch to slip through. With a perfect lap produced there are very few things to bother the operator of the comber.

Top combs should be gone over daily. A piece of emery cloth should be wrapped around a piece of wood. This will take off slight burrs that are too slight for needle pliers to remedy. Combs with needles out should be changed immediately, as any break lets waste through. When one realizes that not more than five per cent is taken out by the half laps, it is obvious that the combs must be kept up if quality is desired.

Half laps should be inspected every week. If any needles are bent, they must be straightened. If the needles appear dirty, the brushes must be raised. The brushes will ordinarily last about three to four years, then they must be sent to the brush works to be re-bristled. Care must be taken not to set new brushes too high.

Care must be taken to see that the re-needling is done correctly. If any space is left between the matrices they will soon choke up and the entire row between will be filled. Then the sheet of cotton will be dragged against this dirt instead of the needles. Needle shops become very negligent in this matter unless drummed up occasionally.

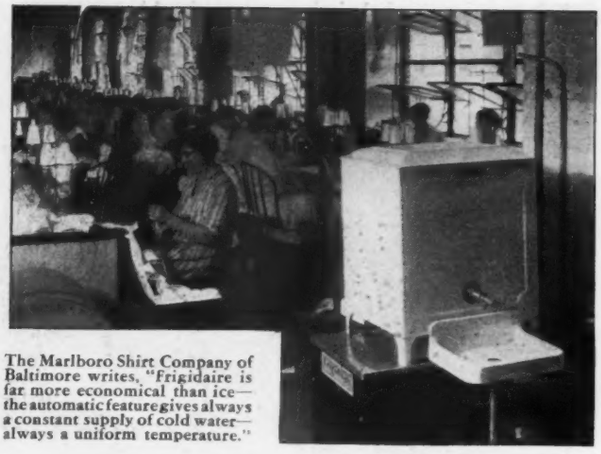
Leather detaching rollers should be taken out and wiped off and varnished weekly, making sure that they are good and dry before placing back in the comber. These rollers should never be oiled, but a small amount of grease applied to the necks before the shells are placed on. The grease used should be fairly stiff, as light grease would be apt to run out and get either on the leather or the steel rolls.

Combers must be timed right in order to run good. Combers of the high speed type should detach at 5⅞ and feed at 6¼. The feeding must take place after the detaching to make a good strong piecing. Once timed right, the comber should be left alone. Some may say that the time of feeding must be altered according to the percentage of waste. That, in my mind, is pure bunk. The feeding must be recognized as a fixed timing. If the waste be too little, the feed roller should be moved back; if too great, move to the front. The amount of waste is determined by the distance from the bite of the detaching roller to the bite of the feed rollers. All fibers held by the detaching rolls are pulled through the comb. All fibers behind the comb not held by the nippers are carried into the waste-can.

One who changes the time of the feed roller is causing more uneven sliver, more uneven combing and a weaker sliver.

Occasionally the sheet of cotton coming over the feed plate may be puffed up on one side. Probably in this case the top feed roller is not parallel with the bottom one, or the springs are of an uneven tension. The brush on the end of the feed plate might be down into the bite of the feed rollers, causing the cotton to hold back.

If the web as delivered from the rollers into the



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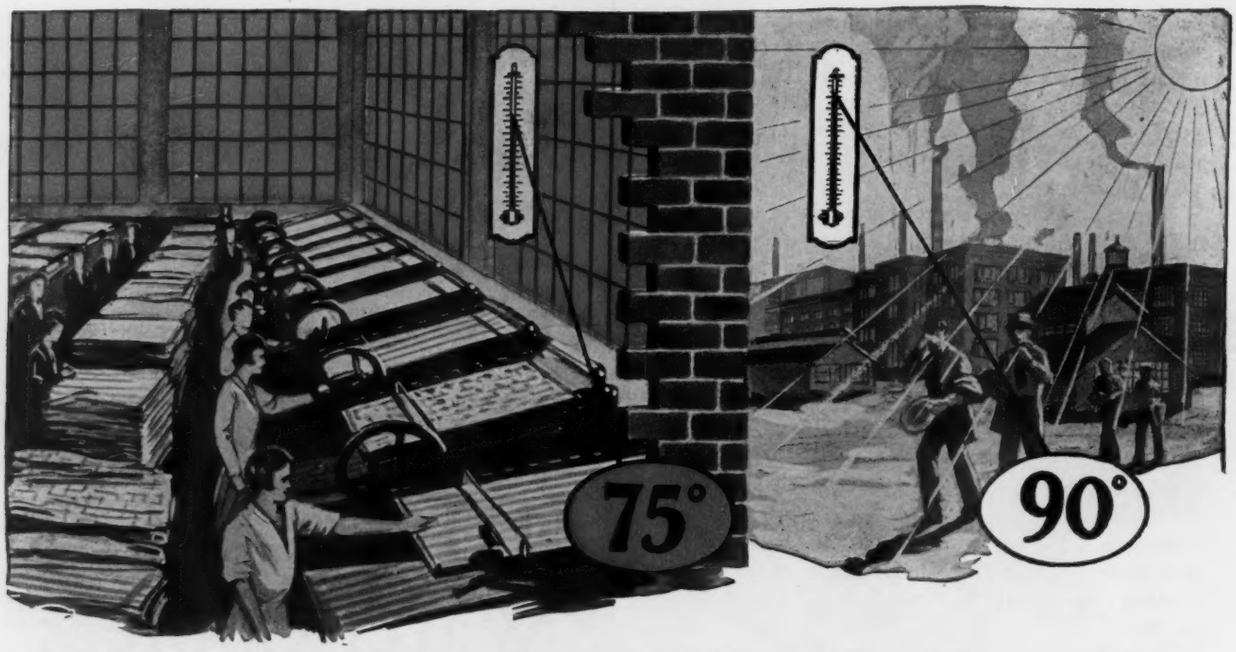

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pan has a cut appearance on one side, or is not pieced right, either the neck of the leather roller is worn or the blocks are set too high. If the necks are worn, the rollers must be re-necked.

The blocks might also become too low, but that is discovered readily as the needles scratch the rollers up.

Laps running poorly in the creel cause the maximum amount of trouble. Laps continually shifting is usually caused by too dry an atmosphere. More humidity is the only remedy. If laps are continually lapping up on one side one must look back to the ribbon frame for the trouble. Bobbins too short would cause the plate to rub and make a sticky-edged lap. Too much weight on the friction causes the lap to run slower than the discs, making a sticky-edged lap that has a burned appearance near the core. Sometimes the cotton on leaving the plate runs down between the disc and the calender rolls and then comes up and winds on. This is usually on the wheel side, opposite the screw. The cause of this is that the racks are not even. Usually a couple of turns on the compensating mechanism on one side will fix it.

If the cotton seemingly cuts off in one head of the comber, then comes through again, that is, if one end does not piece at all on one head, and continues to do this, the trouble can be found on the doubler. One of the top rollers will be unweighted. Laps will have thick and thin places. When the thin places come in the combers the end will break.

Combers should be oiled well every Monday, care being taken to see that all moving parts are oiled. The fast-running parts should again be oiled in the middle of the week. With good oiling, proper cleaning and reasonable oversight, a comber section should run with but little friction.

I hope that some of these little "kinks" that have bothered me at times may help someone else out. I have left all layouts out, and have endeavored to list all of the things that are likely to bother anyone.

CONTRIBUTOR NO. 4159.

More About Slipping Belts.

EDITOR COTTON:

In glancing over my back issues of COTTON in my library the other night, I ran across a short article which impressed me very much. This was, "A Remedy for Slipping Belts," which appeared in the March issue. I do not know how I missed it at the time, as I try to read as much of every issue as possible.

The man who wrote this letter, "K. H. (FLA.)," said he found that yellow vaseline, thoroughly rubbed into both sides of a *clean* leather belt was a good treatment (if not the best), to make belts pull without slipping. He said that the chief virtue lies in the rubbing-in process; that the vaseline should be used sparingly on a clean warm belt, and *thoroughly* rubbed in. He added that vaseline is much easier to apply than tallow, and the belt surface is not left greasy or sticky if a little too much is put on. Also he said vaseline may be kept indefinitely without becoming rancid, and that it evaporates a little faster than tallow, requiring about six applications to five applications of tallow.

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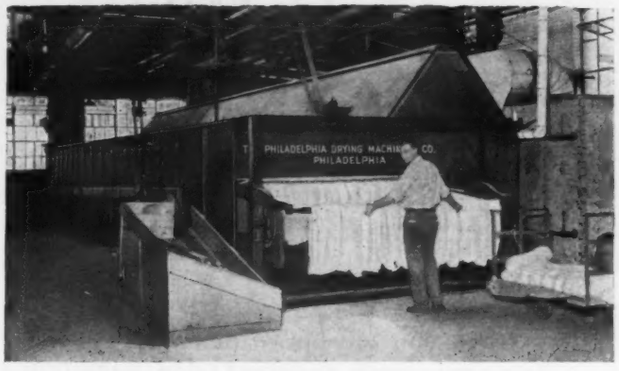

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We do not desire to sell you "just chemicals." We want to help you find out what chemicals you need and how best to use them. We have made Federal Service mean just as much as Federal Chemicals. In no other way can we justify the maintenance of our large laboratory and staff.

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I have never tried his method; in fact, I have never heard of it, but that doesn't mean anything, because we are forever hearing of new things at every corner, and if a man "is not there," somebody is going to "tag" him, in these progressive days in which we live. It is no joke—things are being developed now-a-days which we would have considered "nutty" in years gone by. It is through the medium of such magazines as COTTON, and in our textile meetings, that we can learn of new methods and developments for bettering the efficiency of our plants.

Getting back to belt dressing, in the 35 years of my experience in the mill, I have many times contended with slippery belts whistling here and there in the rooms, some of them getting coated with lint, making it necessary to clean the lint off with a piece of dampened waste, placed inside of the belt, before putting the dressing on. And the dressing in the old days, by the way, ranged anywhere from Octagon soap to ground-up rosin, and furthermore, I remember that most of the time the frame hands had to buy it themselves if they got it at all, but it was worthwhile, as they were paid by the piece.

I have even seen drawing frame hands all stuck up by the section man cleaning off the drive belts on the frames. The lumpy matter cleaned from the inside of the belt would fall on the slivers at the back of the frames and be carried in and through the rollers, causing the ends to lap up and break down, and the particles which passed through would stick on the slubber rollers, causing more trouble. Take the counter belts, for instance; I have seen the fly from them settle all over everything, making dirty, gouty and oily-looking work, especially on cleaning-down day.

But that was in the days gone by. Now we are using a dressing which is the best I have ever seen, and it does not take very much to give the desired results. It will keep the lint and dust from settling on the belt, and there will be practically no shedding from the belts. How many of us have seen the inside of card belts coated with lint. Our belts with this dressing applied lightly every other week, keep pliable, and the lint stays off. Of course the application in this case would have to be governed by the grade of cotton. The rules of the discussion department of COTTON prevent my giving the name of this dressing, but if any reader is interested in it, on the basis of our recommendation, I shall be glad to furnish him with the name and source of it personally, if he will write to me in care of COTTON.

T. A. D. (GA.)

New Textile Factoring Organization.

Commercial Investment Trust Corporation has acquired the Frederick Vietor & Achelis, Inc., one of the oldest and best known textile factors in the United States, and has merged this with Peleris, Buhler & Co., Inc., another prominent textile factor. Thomas F. Vietor is chairman of the board of the merged company, and Robert G. Blumenthal is president. The combined organization will factor for approximately 150 mills, and it is anticipated that the combined volume of business will exceed $100,000,000 annually. It is stated that this merger produces the largest textile factoring organization in the world.

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Lambeth tapes do save money. The list of prominent mills which have standardized on them and have used them for years is proof positive of their quality.

Even the naked eye shows Lambeth superiority. Smooth, even, perfect selvedges—a lustre to the tape itself that denotes rugged resistance to wear. Such tapes run smooth and easily and last longer.

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Ask for samples. Compare with other brands. Then does the inbuilt quality of Lambeth and the quality of cotton used in the yarn make itself evident. Equip once with Lambeth Spinning or Twister Tapes and you will have no other.

Look for the green label of Lambeth on every roll of tape you buy. It is your assurance of economy and satisfaction.

If you are not using Lambeth, write for samples now. There is money to be saved by them.

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LAMBETH SPINNING AND TWISTER TAPES
Basket & Herringbone Weaves

A Method of Oiling Rayon.

EDITOR COTTON:

This replies to the inquiry of your contributor who wanted some discussion with reference to methods of oiling rayon after dyeing.

I wish to advise that we do all of our softening right in the dyebath. For this purpose we use a softener which is suitable for this purpose, and one which does not leave the yarn in the sticky condition. By using a reasonable percentage of this during the dyeing process, no further oil is necessary for yarn which has been properly handled in the dyeing.

At times, when some of the finer deniers have been worked considerably, a certain amount of one of the white mineral oil compounds is sprayed on before winding and the yarn is allowed to lie over night so that even penetration is obtained. It all depends upon the purpose for which the yarn is to be used, and some oils are readily washed out and some are not.

CONTRIBUTOR NO. 4139.

A Discussion of Supershrink Finishes.

EDITOR COTTON:

I recently received an inquiry from a correspondent asking for our opinion as to the shrinkage of goods from gray width to finished width in finishing. The goods in which he was interested were the following:

Rayon filled goods 36-inch—64 x 50.
1 end canton filled 22/26 silk—38-inch—72 x 60.
Broadcloth 37-inch—120 x 72.
Chambray 35-inch—80 x 80.

In replying to his inquiry, I tried to give him what we had found to be the normal finished width that would be given the goods in the normal course of finishing. Of course this was difficult to do, because different converters might have different requirements, even on the same fabric.

However, I told him that on the rayon fabric mentioned, the general practice would be to finish that to gray width, or, in other words, 36-inch. On the canton filled fabric, I did not know definitely, but suggested that in all probability this would be gray width also. On the 37-inch broadcloth, the customary practice would be to finish that to about 35½ inches, and the 35-inch chambray would be finished probably about 34 inches.

Later this friend requested information concerning the so-called supershrunk finish, and I replied to him as follows:

The finished width will vary considerably, depending upon the fabric. The idea in supershrinking is to have the goods, whether it happens to be a heavy duck or a light sheeting, take the full shrinkage, which of course is variable, depending upon the fabric. The idea is to get the fabric so that there will not be any further shrinkage after being made into garments.

This is not true with regular finishes, in that on regular finishes there is usually a more or less standard finished width which is used on various fabrics. It is possible to pull the goods out to that width, whatever it may be. This is not the case with supershrunk

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WRITE FOR BOOKLET 101

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The fact has been proven by actual test that BONDARON HARNESS STRAPS will outwear several of the ordinary kind. That is but one reason why they have been chosen as standard equipment by mills throughout the country.

An actual test in your own mill will convince you. We will gladly furnish on request a sample BONDARON HARNESS STRAP.

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Leather Curriers, Importers and Manufacturers of Leather Belting and Textile Leathers

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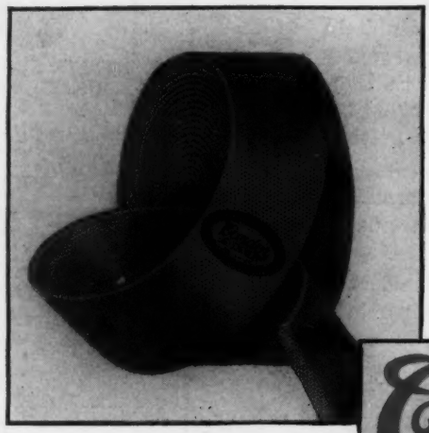
"That one MAKES MONEY"

FARMER BROWN has two 3-year-old cows . . . Pastures them in the same field. Both are healthy, both eat alike—same age, same size. Yet, while one gives five, the other gives nine quarts of milk daily. Both are good cows. Five quarts of milk per day from a cow makes money for the farmer. But nine quarts per day—of course, that's eighty per cent *more* profitable! Even though he does make money from the first, the other cow is a real source of income.

Naturally, the value of belt is reflected in time of service — uninterrupted, steady, efficient transmission of power. To this end Condor Belt was born.

Condor Belt gives more service. Its longer wearing ability is surprising. Match a Condor with any good belt of the same specifications. Both will give you service —yet, watch them. Weights of duck and friction tests in the belts may be alike, but even then you cannot foretell their span of life. Time is the deciding factor. The component parts of Condor have been selected according to aging qualities and built to resist long wear. Condor Belt is steeled against time. *That's why Condor makes money!*



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finishes, as the fabric is allowed to take its natural shrinkage.

If any of your finisher readers have any further comments to make along this line I should be very much interested to read what they have to say in the "HOW OTHER MEN MANAGE" department.

CONTRIBUTOR No. 4144.

The Second-Hand and Labor Turnover.

EDITOR COTTON:

There has been much discussion in the "HOW OTHER MEN MANAGE" department of COTTON on the human element. There have been a number of splendid letters on the overseer, the second hand and the section man. I wish to add a bit to what has already been said, by attempting a discussion of the relation of the second hand to labor turnover.

In a well-regulated mill of average size, the second hand is in closer touch with the help than any of the rest of the official family. Of course the overseer often comes in personal contact with the individual on the job. At rare intervals the superintendent may have this opportunity. But upon the shoulders of the second hand falls the brunt of the personal dealings with the help so far as the mill is concerned. It can readily be seen that the impression the second hand makes upon the man on the job will often determine his future attitude toward the mill.

A man with but little tact might make a splendid overseer in that it is possible for him to manage his department in a businesslike manner so as to make money for his company, as his orders could be transmitted through his second hand. But such a man would make a poor second hand. If the second hand finds himself to be a man with little tact, he should cultivate this grace. How often do we go to a fellow with the best sort of intentions in our hearts, but our manner of approach is such that at the first word the man gets mad, and we find we have made a mess of things. (The rest of this article may be mostly "bull", but as to this part the writer knows whereof he speaks, for his hardest fight has been an effort to achieve that ability to deal with others without offending. And brother, you can expect your turnover to be sky-high if you, as second hand, are not tactful in dealing with your help).

The personal contact of the second hand, as well as of the overseer will do much to reduce turnover, provided, of course, both tact and discretion are used. The superintendent of a large southern mill offered a handsome prize to the second hand of the department showing the lowest turnover for the year. In fact this prize was offered for several years. It developed that the smaller departments, where the overseer and the second hand could be in constant personal touch with their help, won every time. While the larger departments, where this was not practical, never at any time had a chance at the premium. In discontinuing the award of the prize because of the advantage of the smaller departments, the superintendent urged the overseers and second hands of all departments to get in closer touch with their help to

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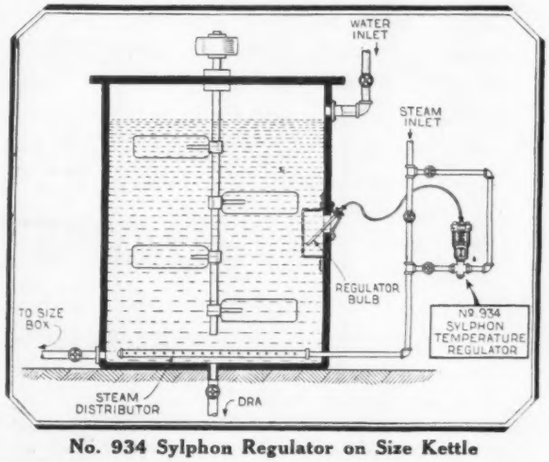

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Especially should the second hand stay in touch with the new man, for often the impressions of the first few months in the mill make or mar the man's chances in the textile industry.

Of course the second hand should at all times conduct himself so as to maintain the confidence and respect of his help. He should avoid getting too familiar, especially on the job. It is possible to go to that extreme. He should never play or frolic with the people on the job. And he should avoid giving orders or instructions in a joking manner, for if he does he will find that many of his orders are not being carried out as the help will not know whether he means business or is merely joking.

In my opinion, the second hand should not be deprived of his authority to discharge a man when the necessity for it arises. But this authority should be used wisely. An old and very successful superintendent, in training his sons and his men under him, often said that just anybody could fire a man, but that it took a good man to take sorry help and make good help of them, or to get them to work.

Because of his more mature judgment the overseer should do the hiring of the help for his department—except in mills that have an employment manager. I have known of some departments where the overseer and the second hand both attempted to hire the help. Sometimes one made promises without the knowledge of the other, so of course an embarrassing situation was inevitable.

Nothing so builds respect for and confidence in a second hand as does a spirit of cooperation and harmony existing between the second hand and his overseer, and between the second hand and the heads of the other departments. Read the article by "CHRISTY (MASS.)" in the January issue of COTTON and see what he says about cooperation with the management. If you are unwilling to cooperate, the help knows it, and they also know that you are a poor second hand with small chances of success.

It costs the individual money to move. It costs the mill money to have to replace him on the job. So just from an economic standpoint the second hand should use his influence to keep the man on the job satisfied and as contented as possible. It is a common expression in my section when a truck is seen backing up to a house, or going along the road with a load of household goods: "Another good man mistreated". Now is this a truism for which the second hand is responsible?

CONTRIBUTOR NO. 4022.

Book on Slasher Temperature Control.

The Powers Regulator Company, 2720 Greenview Ave., Chicago, Ill., manufacturers of temperature control equipment, have issued a booklet describing the Powers system of thermostatic control for the slasher room. The booklet describes in detail the various applications of temperature control equipment which the company makes to size boxes, cooking kettles, storage kettles, cylinders, etc., and shows photographs of this equipment installed in a number of prominent southern mills.

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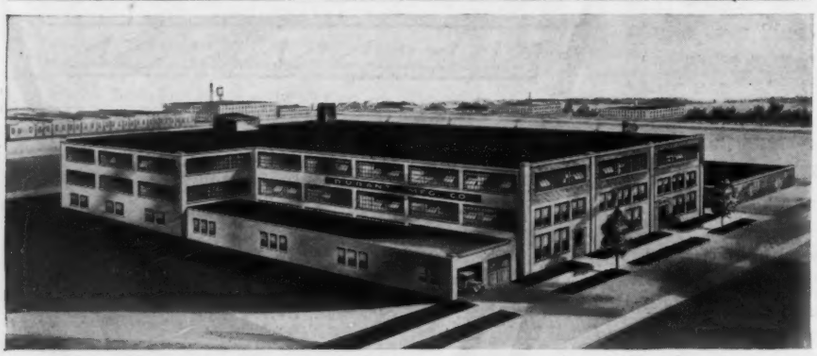

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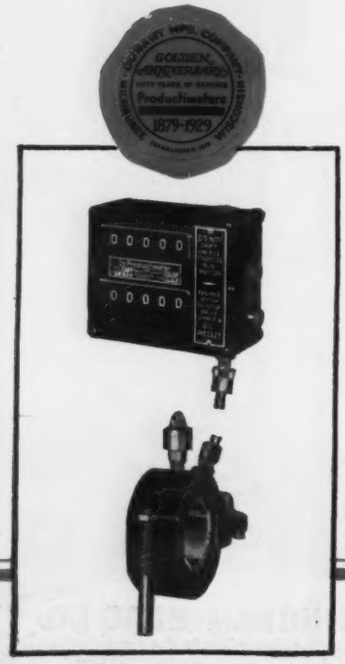

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THE SPEEDOMETERS OF INDUSTRY

Spinning Discussion Report.

(*Continued from page* 741.)

At this point there was some discussion, suggested by Mr. Fagan, with reference to the Broome-Lyle bobbin former. At the specific request of the Association that this be omitted from the record, no report of this discussion is here included.

Causes of Kinky Filling.

Mr. Dilling, who was now conducting the discussion in the temporary absence of Chairman Harris, asked next, "What are the causes of kinky filling, and how can they be remedied?"

"I used to think it was too much twist," commented Mr. McCombs, "but I have had kinky filling where I ran 3.75 and where I ran 3.00 times the square root. Where I ran 3.00 times the square root, I could put it on a 40-inch loom, and if the goods were wide enough for the loom I wouldn't have it, but when I put goods 28 inches wide on a 40-inch loom, I would have kinky filling, because the battery was so much further away from the cloth. In running narrow goods that way we have to fell up the shuttle and take out twist. I do not believe you should have kinky filling on goods suited for the loom on which they are being woven."

"What effect will the weather have on leather covered top rolls?" was the next question. Mr. Dilling explained that the weather used to be a problem in this connection, that the old "dog days" used to play havoc, but that with satisfactorily controlled humidity conditions at the present, this evil is considerably lessened. "There is no question," he said, "that different atmospheric conditions will have an effect on leather rolls. Damp sticky weather will make the rolls lick up."

Reducing Roller Cost.

"What remedies can be put into effect to reduce roller cost?" was the next subject presented.

"I think the best remedy is to buy the best skin that there is on the market, and then have just as good cotton as possible, and have the work running as good as possible," declared John S. Lockman.

"I have always been a crank on using the best cloth and the best skin," said J. V. McCombs, "but now I am a crank on getting the best roller coverer possible. For three years I have been using a skin that costs one-third less, and a cloth that costs 25 cents a yard less than anything I used to allow to go on my rolls. I am running on 4s to 26s, and have averaged less than one roll per spindle per year. It is due to good workmanship in covering the rolls." Mr. McCombs expressed the question here as to whether conditions had improved over the years—he said that 25 years ago he was running a section of 52 frames, and was allowed 200 rolls for replacement per week, and pointed out that this approximated a roll to the spindle a year; the mark now being used as an average by many mills.

Uses Cork Rolls.

T. W. Harvey at this point told of using cork rolls in his mill for three years, merely taking them out every six months for rebuffing, and, he said, "I have

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several more buffings coming to me yet." He told particularly of a difficulty with sweating from an improperly insulated roof, declaring that the cork rolls will not lick up. He has also applied cork rolls to his drawing frames, with good results, he reported. He referred to 15/16 to 1-inch cotton.

Mr. Lockman reported that on 30s and 40s, running double boss rolls, he averages a roll to the frame a day. Mr. McCombs asked what method he used for getting both sides of the roll on a double-boss affair of the same diameter. Mr. Lockman said their roller coverer sorts the hides and picks out the best part of the skins for the double boss rollers, and uses the remainder of the skin for the single boss rollers. Mr. McCombs told of practically the same thing: taking the middle portion of the skin, where there is more evenness found, for covering the double boss rolls; measuring the skin to prevent the making of waste in cutting.

Added to what he had previously suggested, Mr. Lockman pointed out that other ways of reducing roller cost are to "keep the rolls properly oiled, keep them clean, keep the gouts out, and—the great thing—is for the card room to keep the hard ends out."

Explaining that weather conditions affect leather cots in the same way they affect belts, such as producing slackness in belts in damp weather, Mr. Ennis wanted to know if there was any kind of flannel which might be used to offset the contraction and expansion of the leather cot. J. V. McCombs recommended the use of a cloth which has one smooth side—with all of the "weave" on the other side—placing the smooth side against the roll.

Someone asked if anyone present cut the skins or flannel on an angle, and the chairman indicated that while this practice was formerly used, it seemed that it has been almost universally abandoned at this time.

Distance of Thread Guide from Spindle.

The next question asked by Mr. Harris, who had returned to the chair, asked for the proper distance to set the thread guide from the top of the spindle, with regard to end breakage. Mr. McCombs suggested, on 30s warp, filling wind, 1⅝-inch ring, a setting of 1⅞-inch; and on 40s filling, 1⅜-inch ring, he proposed a distance of 1½-inch. Chairman Harris said that a questionnaire submitted to members several years ago showed general practice on 30s warp to be 1¾-inch between the top of the spindle and the thread guide. He asked next about the distance between the thread guide and the point of contact with the front roll, and it was answered that this would be determined by the angle of the roller stands.

Methods of Cleaning Roving Bobbins.

"What is the best method of cleaning roving bobbins, other than by vacuum?" Mr. Harris asked next.

"I find that a machine that cleans them with card clothing is a very effective method," responded Mr. Dilling. "I have been running one now for several years, and have seen no damage to my bobbins."

Tom Harvey suggested that, in cleaning the bobbins manually, a piece of card clothing fastened to a piece of wood is very effective.

Another member reported the use of compressed air for cleaning roving bobbins as a very good method that doesn't break the fibers nor damage the bobbins.

"I have never seen the compressed air method," said Mr. Lockman, "but it sounds like it might be a good thing. The machine that rolls the roving off is the best method I have ever seen."

Mr. McCombs advised that one of the best methods is to have the bobbins with no ridges on them, and then see that the doffing is done correctly on the speeders.

"Do you make more waste in using the machine?" someone asked Mr. Dilling.

"No," replied Mr. Dilling, "my experience is just the opposite: that where you have a machine you can see every bobbin, and if the spinner takes it off too soon you can tell what she takes off, so you really make less waste with the machine.

"We also reduced the waste when we put in the machine," said Mr. Lockman. "I find that you have a better chance to watch it. My instructions are that if a bobbin has more than it should have on it, they set it back on the spinner's creel and she must put it back in and run it down."

Long Draft Spinning.

The final discussion of the morning session was with reference to experience with long draft spinning. The Association requested specifically that since this discussion involved reference to particular makes of equipment, that no report be made of this in detail. However, regardless of the system, the general opinion of those reporting seemed to coincide on the points that with the long draft methods there had been found, according to their experience, more end breakage, more cleaning necessary, a little less breaking strength as a rule, with the speed remaining about the same. At the close of this discussion, Mr. Lockman asked if any men present were using a draft of more than 10 on single roving and more than 13 on double roving. Mr. Alexander, overseer of spinning at Cooleemee, reported the use of a draft of 10.50 on 21s warp yarn, filling wind, 2-inch ring, ¾-inch bobbin 8½ inches long, with a breaking strength of about 80 pounds. This concluded the morning discussion.

For luncheon, the delegates joined the Charlotte Civitan Club, where an interesting and enjoyable entertainment program was carried out.

Using Special Hands for Cleaning.

There was a very brief afternoon session, with a smaller attendance. The first subject brought up was with reference to using separate operatives for cleaning spinning frames, releasing the spinner from this work to do only creeling and piecing up. Mr. Lockman said he had not tried it, but that he understood the method was to put the best spinners exclusively on creeling and piecing up, assigning the cleaning to less experienced or "green" help. In his opinion, this is the opposite to what should be done as he expressed the belief that the cleaning of the frame and its parts is the most important element about a spinner's job, and he said if he were applying the system, he would turn the thing around: that is, put the more experi-

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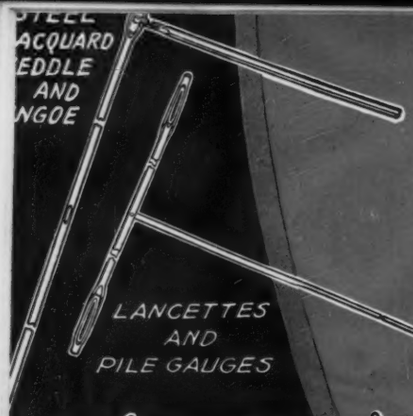

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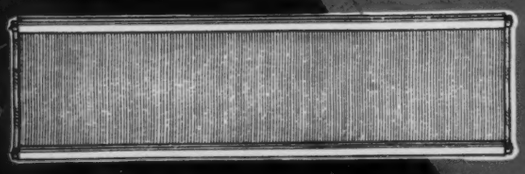

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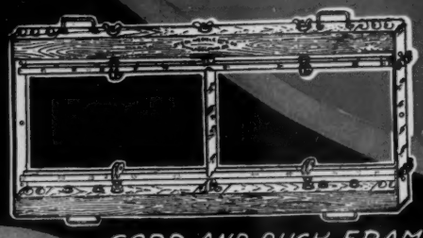

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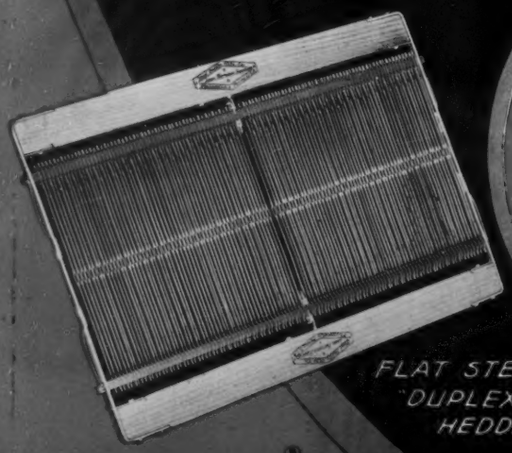

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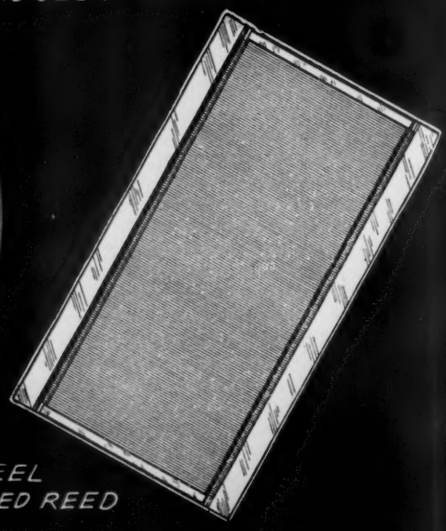


STEEL SOLDERED REED

enced help on the cleaning elements, etc.

Will Morton, overseer of spinning, Mollohon Mill, Newberry, S. C., reported that, running night and day, using the system of special hands for cleaning, he averages 20 to 22 sides to the spinner on 30s and 40s and 48 sides to the cleaner. Explaining the latter statement he said that the cleaners on the day run tend 24 sides, and those at night tend about 56, but that the major cleaning, and the bulk of it is done on the day shift. He agreed with Mr. Lockman that the cleaning is very important; adding that it requires more than one-half of a spinner's time under the original system. He emphatically stated, in response to a question from Mr. Lockman, that it is absolutely necessary to have stated times and a regular schedule for the cleaning, adding that in the cleaners' work there is an element of rest involved.

Mr. Hamrick of Pacific Mills stated that they had the system of special cleaning hands, with an experience of about four years on it, and had no trouble at all in operating it. He said his cleaners take care of 44 sides on 40s filling, and 36 sides on warp; and that his spinners handle 18 sides.

Dilling Describes Traveling Cleaner.

A man from a mill in Belmont, spinning 78s, described their system of blowing the frame off after each doff. They doff all frames at the same time and blow off at the same time; and, he explained, they do not wipe any roving or back guides. Here Mr. Dilling described his experience with the automatic bunchless cleaner, which travels on a trolley above the frames. One cleaner, on his numbers, he said, blows off 12 frames, and makes a trip about every 10½ minutes. He said this blowing cleaner eliminates the wiping of roving materially, and reduces the wiping of back guides by about 25 per cent; however, the machine does not clean below the guides. He explained this as a traveling head which distributes a current of air down on the frame, and pointed out that if this did not get around often enough it would do more damage than good, by blowing the added accumulation into the work, but that the schedule mentioned permits it to return to each point with sufficient frequency to keep this accumulation down satisfactorily.

"What is the best draft for 30s warp?" was the final question asked by Mr. Harris. The replies given were as follows: 12.00, 12.50, 10 to 11, 11.60, 12.20, 12.80, 11.10, 11, 12, and 12. Practically all of these men agreed that conditions forced them to use these drafts, indicating that if it were possible, they would prefer a draft of between 10.75 to 11 for this work. One man explained that with a draft of around 12, a variation of a slight degree in the evenness would have more adverse effect than if the draft were lower.

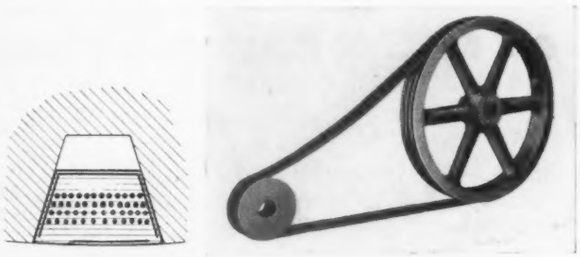
Change Travelers Every Four Weeks.

A member asked about how often travelers should be changed on 30s warp, No. 1 1¾-inch ring, 96 r.p.m. front roll. Mr. McCombs, Mr. Hamrick, and Mr. Morton all reported it as their practice to change travelers every four weeks on this number. Mr. Morton reported making a test to see how long a traveler would run, and after 5 weeks of double shift operation, corresponding to 10 weeks day running, he said he began to notice ill effects. John S. Lockman pointed out that the condition of the ring has a great deal to do with the traveler life, and said that, "I believe if you run a traveler for four weeks on an ordinary ring you will have a traveler that is getting pretty sharp and that blues up considerably." A question was asked here as to what point on the traveler wearing caused damage to the work and it was unanimously agreed that the wearing in the crook of the traveler, rather than on the point, is the wearing which affects the quality and running of the yarn. With this discussion the meeting was adjourned.

Fairbanks-Morse V-Belt Drive

A RECENT development in V-Belt Drive is known as the Flex-Mor Drive, a product of Fairbanks, Morse & Company, Chicago. The new drive is the result of numerous field and dynamometer tests to determine the factors of belt angles, slippage, the life of belts of various constructions, character of the various materials entering into the drive, and power capacity, the company explains.

The belts which are used in this multiple elastic V-shaped belt are built up of an outer belt jacket of duck, which is treated with rubber to improve its wearing qualities. As shown in the cross section illustration, this jacket consists of two layers of duck enclosing a core made up of a layer of rubber, several layers of rubber-embedded cords, and another layer of rubber above the cords. The layer of rubber



below the cords is specially compounded to withstand repeated compression, while the layer of rubber above the cords is specially compounded to withstand repeated tension, it is pointed out. The rubber-embedded cords are laid at the neutral axis of the belt where there is the least tension or compression. These cords are made of long staple cotton and the construction is quite similar to that which is used in cord tires. The various elements of the belt are assembled in the mold and vulcanized together into a unified structure.

The sheaves are made of semi-steel and have been designed with particular reference to the angle and depth of the grooves so that the belt slippage is a minimum. At the same time the relation between the angles of the belt sides and the grooves are such that the belt makes a gradual contact with the grooves as it bends around the sheaves. Due to the wedging action of the belts in the grooves, and to their elastic qualities, the company points out that there is no sudden grabbing of the load, and sudden shocks to the driving and driven machines are thus eliminated.

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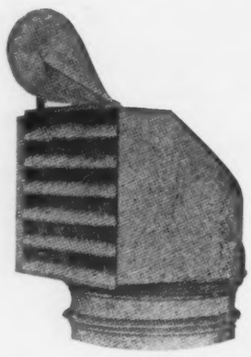

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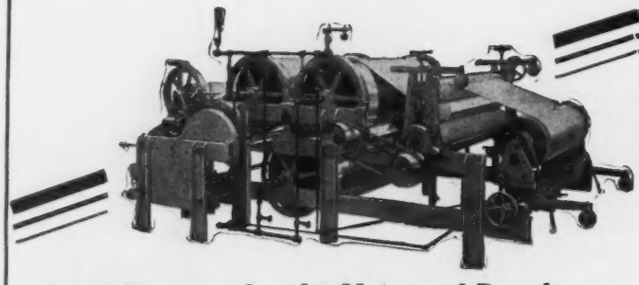

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Dyeing Vats in Circulating Machines.

(*Continued from page* 746.)

lation or analysis or just plain brain power one single workable formula, but there seems to be no doubt that supposing it were possible for physical chemists and dyers to get together, so that the physical chemist could educate himself to understand what the dyer was talking about, the art of vat dyeing would be transferred to a firmer basis than that of trial and error.

Vats Dyed in Leuco Form.

Vat colors are, as is well known, dyed in their leuco form. In this condition, the chemical nature of the vat is changed whereby it has lost oxygen. In this state the altered vat, now in the leuco form, is soluble in soap solution, mild alkalies; it is, however, usually applied for dyeing in solution of caustic soda of a special concentration, so many pounds of caustic soda to so many gallons of water, irrespective of the weight of yarn.

The actual reduction of the vat dye, whereby it changes over to the leuco form is not of itself a difficult achievement. When hydrosulphite is put into a suspension of the vat color in the presence of alkali, that vat color, no matter how lordly its parentage, and how direct its descendant from anthraquinone, is in the prescence of a superior power, so it passes into the leuco form without more ado, there to wait a better day when there is more oxygen around.

It may be then asked, if it is so easy to persuade these vat dyes to pass into the convenient leuco form, why then is vat dyeing so generally considered to be one of the black arts, why is there still so much uncertainty as to correct procedure, why is so much vat dyeing still deficient as regards quality and fastness?

Must Be Maintained.

As said, the initial reduction of the vat color is not a matter of difficulty, nor in the dyeing of yarn of circulating machines has the dyer much cause to worry about premature oxidation. The real trouble is that vat colors are very aristocratic creatures, possibly they realize that the whole industry depends on them for fastness; anyway whatever the reason is, unless the leuco body is first correctly produced and then maintained in the proper condition it turns sulky and won't play and the dyeing produced is a poor one as regards its shade, strength and fastness.

All of us have had such experiences; so far as we know the dye was correctly reduced in the presence of the proper chemicals but still obviously the vat dye was not in the frame of mind to give the yarn the best that was in it.

This looks like a wonderful chance for pH to come to the rescue and do its stuff, maybe if we knew exactly how much caustic was in the bath and just how much of everything else was there, the vat color would change its mind and do better from then on.

There are several plants in this country that, if they did not use pH in connection with their vat dyeings, at least used the next best thing and that was

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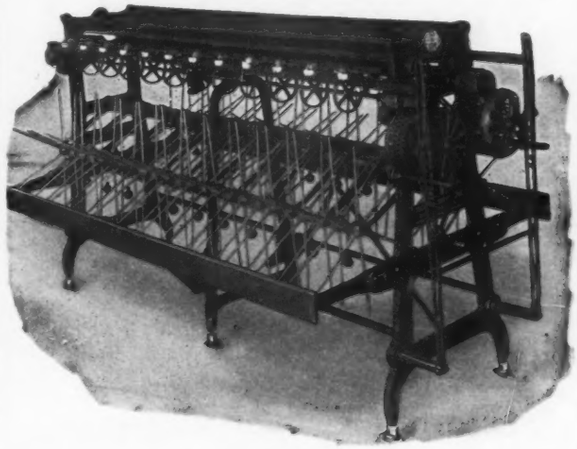

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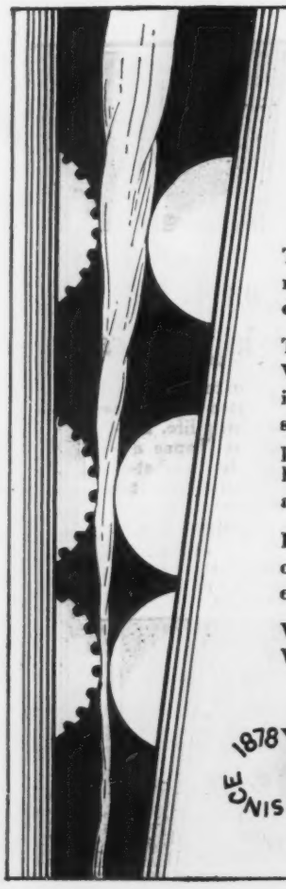

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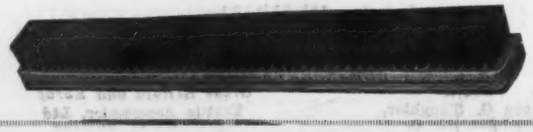

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chemical analysis. They worked out methods for the rapid titration of the baths for caustic and hydro, without so far as is known ever being able to really control the vat dyebaths by such methods.

Incidentally it may be remarked that the very finest method of pH control ever devised is a good man in charge of the drug room.

It is not necessarily the chemical content of the bath that determines vat dyeing, though the proportions used must be correct within certain limits. The important factor in the process is the correct dispersion of the particles of the leuco body.

Dispersion is just another word for separation, it means that the molecules of the leuco body are separated. Obviously if the molecules were all stuck together the result would be a jelly, which could not be used for dyeing in a circulating machine, naturally then the more we can separate or disperse these molecules the better our dyebath can circulate and the slower will be the exhaustion. We have at present no apparatus available which will tell us, on the same day that we ask, how dispersed the leuco body is. Such an apparatus would be of great value to the dyeing industry.

No one has even seen a molecule of a leuco body, not even the inventor of the fastest dye known would be able to recognize such a molecule if it walked up the steps and wiggled its double bonds at him so, without fear of being contradicted we call the readers attention to Figure 1, which is supposed to represent a molecule of leuco body about to combine with the cotton fiber.

We are going to assume that the cotton fiber carries outside of itself little magnets. We are also going to consider that the vat molecule is six-sided or hexagonal and is composed of material capable of being attracted by the magnets on the cotton yarn. One side of the vat molecule can combine with one magnet on the cotton. In that way we produce our dyeing. Later by the influence of the boiling soap the molecule of the vat dye is carried into the cotton fiber and fused with it.

In Fig. 2 is shown the condition that might exist in the event that the condition were not correct for a proper dyeing, maybe the bath was short of hydro or contained too much caustic or not enough caustic, or the leuco body had been allowed to stand too long before being used, then we might find that several of the leuco molecules had joined themselves together producing a molecular clump or complex, something like a lump of half boiled starch in a size mixture. These clumps, still possessing attraction for the cotton yarn, form the dyeing and we obtain our shade, but later on when the yarn is put into boiling soap the situation is top heavy, the magnet on the cotton cannot drag all that clump of dye into the fiber and the excess is washed away or else stains the fabric in the bleaching operation.

Dispersion means that the molecules of the leuco body are not permitted to gather together but are kept apart, so that each may combine with the cotton yarn in a dignified and permanent manner and the art of vat dyeing is the application of the correct dispersion

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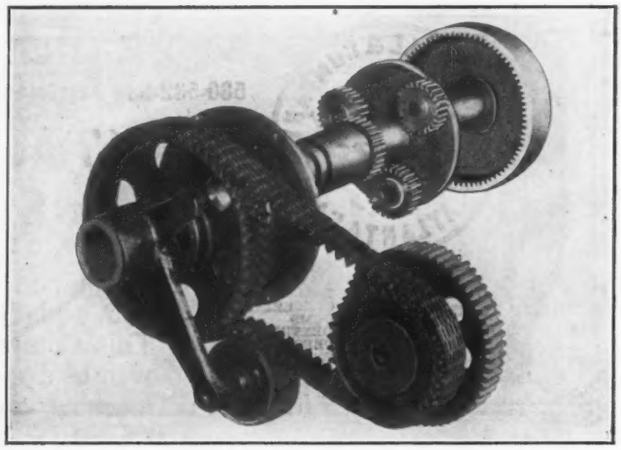

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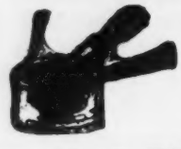

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agent to the particular shade being dyed.

Different dyes require different dispersion agents, for some the caustic soda that dissolves the leuco body can also act as a very effective dispersing agent. For other dyes to increase the concentration of the caustic would result in curdling the leuco body so that a crocky dyeing would be the result. Some dyers use glue, but this substance is of better use in the dyebath for lessening the speed at which the dye goes on the yarn rather than for its effect on the leuco body. Sulphite collulose pitch sold under various trade names is probably one of the most effective dispersing agents known to vat dyeing; there are many other substances used, hydrogenated hydrocarbons find some use nowadays, certain alkalies such as tri sodium phosphate or modified soda ash or something resembling soda ash are also used.

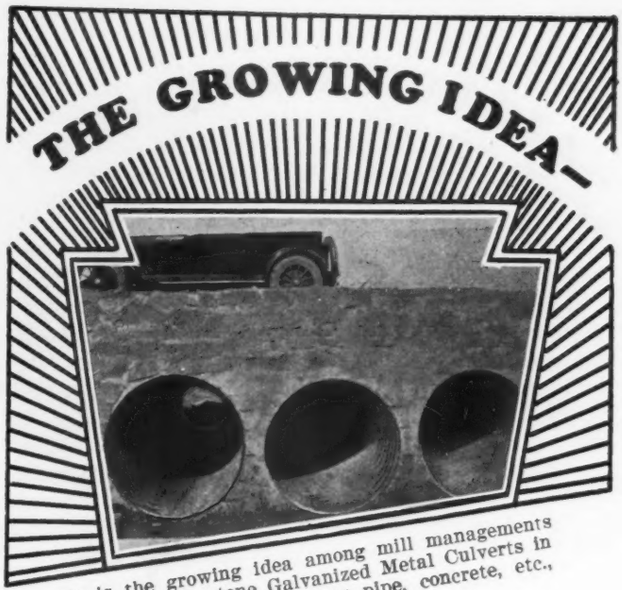
But unfortunately, whatever is used today to regulate the dispersion which is the most important factor in vat dyeing, we cannot directly know what the effect is because we cannot see the effect on the bath, but only the result on the dyed yarn. We still need some machine or apparatus which will tell us, before we start, whether our vat baths are in good condition.

Considerable amounts of cotton are dyed today without boiling out. This is a practice which has been discussed in other articles and by many other writers. It probably is one of those problems which will never be really settled to everybody's satisfaction, but there does not seem to be any reason to think that proper boiling out of the yarn will damage the fastness of the dyeing. When it is remembered that light fastness of some colors depends on the color not being reduced, it will be seen that the removal of cotton waxes and impurities which are reducable, will tend to help the light fastness.

Most probably every dyer has his own special method for reducing the vat color. There are two main methods, the first and most general is to reduce the dye in a barrel apart from the machine, the second is to reduce the dye in the expansion tank of the circulating machine.

Bearing in mind what has been learned about dispersion and its effect on the fastness of the dye, it will be seen that the less a strong solution of caustic is allowed to act on the leuco body, the better the fastness of the dyeing. There is therefore considerable to be said in favor of the reduction in the expansion tank. Such a method operates very well indeed, when the physical condition of the vat paste or powder is such that it easily passes into the leuco form. In the old days we used to let the dye reduce for at least half an hour, sometimes the results were good, sometimes not so good, then some enterprising soul cut the time down to 15 minutes with a distinct improvement in the results, then in some cases the time was cut to five minutes with even better results and from that the step to reducing the dye in the expansion tank was a natural one.

The concentration of alkali in the bath independent of the amount of yarn is an important factor and one not to be lightly departed from. It is probably not entirely correct to say that a light shade will require as much caustic per gallon of dyebath as a



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INDUSTRIAL ENGINEERS
Specialists in Textile Cost Methods Over 16 Years
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deep shade. We used to see that stated in textbooks but actual practice teaches differently, A two per cent of Blue BCS paste is dyed very successfully with only two pounds of caustic soda per 100 gallons of bath, which is half the textbook amount, on the other hand a six per cent dyeing of Blue BCS paste dyes very well indeed with seven pounds of caustic soda per 100 gallons of dyebath.

The correct preparation of the vat paste or powder before starting the reduction is of vital effect on the subsequent dispersion. Some of the modern pastes come into commerce in such thick masses that the best way to smooth them out is to boil the paste previous to mixing with the alkali and the hydro at the proper reduction temperature. This is the case especially with some blues, greens and blacks. The modern powders come well into suspension when they are stirred with hot water containing some sulphonated oil or some of the special trade preparations sold for this purpose. It will be found in some cases that too much concentration of caustic at the time of reduction is of injury to the fastness and shade of the dyeing.

In the event that the reduction is carried on outside the expansion tank it is well to stop the pump of the dye machine until all the color is in the expansion tank. If the color is poured in slowly with the circulation pump going it will be found that the dyeing of the first part of the color is being carried on without the proper amount of caustic in the machine. Obviously, with such a method, the full amount of caustic is not added to the bath until the last of the color is in, which is contradictory to the known theory of vat dyeing.

Realizing this led to the reduction of the dye in the expansion tank with the pump operating. In this method, which gives very good results, the full amount of the caustic and hydro is put into the dye machine and circulated with the bath at the proper reduction temperature. Then the properly pasted color is slowly added to the expansion tank, the reduction will be found to be complete by the time the dye reaches the yarn and the dispersion, so much desired, is all that can be asked for.

This method is particularly effective with the vat blacks which have always been difficult to handle. The formula given below has produced good results in closed machines.

The bath is brought to 180 degrees F, and the following chemicals are put in: 15 pounds caustic soda per 100 gallons; 10 pounds hydro; and 2 pounds sulphite cellulose pitch. Twelve percent of Black B paste is then well boiled up with oil to break up the lumps and the mixture of unreduced dye and water is poured slowly into the expansion tank with the pump running. After dyeing for 45 minutes the yarn is sampled and when the shade is obtained the bath is dropped and the dyeing finished in the usual way.

After dyeing the vat colors require to be oxidized and it is necessay for this oxidation to be very thorough. This oxidation is achieved at times by blowing or sucking air through the yarn. This is very effective but does not seem to produce any better results than are obtained by using perborate of soda or solutions of hydrogen peroxide. The temperature used is usually around 120 degrees F, sometimes the boil is used but it would seem to be the better not to expose the leuco body to high temperatures.

Some dyers make a practice of souring the dyeings after being oxidised. With some shades, especially oranges, the souring does make a surprising difference in the shade, with some lighter shades it does not seem necessary. Acid in an iron machine is always a risk.

Too much stress cannot be laid on a thorough soaping of the vat colors. This soaping at the boil does far more than just clean the yarn of excess chemicals and dye, although that is important. Soaping at the boil has an amazing action on the relationship previously existing between the dye and the yarn. The soaping causes a final fusion or welding between the dye and the cotton, possibly the dye which was on the outside of the fiber now actually is caused to sink physically into the fiber. Anyway, whatever does happen, a vat dyeing cannot be considered to be truly finished until it has been soaped at the boil long enough for the yarn and the dye to get settled.

[This is the fifth of a series of articles on "Package Dyeing in Circulating Machines," by Mr. Schroeder. The next will appear in an early issue.—The Editor.]

New Package Dyeing Machine.

B. Thies, Inc., 551 Fifth Avenue, New York City, announce a number of new features in connection with their new package dyeing machine, Model I.P.D. The dyeing kiers and expansion tanks, rinsing and boiling-off apparatus are of special nickel bearing cast iron construction; this design being for long wear, surface free from rust and corrosion for vat, indanthrene, sulphur, direct and developed color work. There is a separate vacuum station control for the extractors, to accelerate the operation of this feature without affecting the working conditions of boiling-off and rinsing.

An intermediate dye feed, recently patented for the proper mechanical mixing of the dye liquor and control in injecting it in correct proportions to the dyebath, is also used, as is an instantaneous water feed and cleansing arrangement for the dyeing kiers and expansion tank. Another new feature is an automatic control for the circulation of the dye liquor, through packages or beams, in and out and reverse. This can be timed according to the type of work at hand, it is stated, thereby eliminating the human element at this point. A sampling device is used, integral with the dyeing kier, which eliminates lifting the kier lid for testing purposes or the lifting of the material carrier. A winch arrangement of mechanical lift is used for easy opening of the dyeing kier.

Alsop Engineering Company Bulletin.

Alsop Engineering Company, 47 West 63rd Street, New York City, has announced the publication of a new six page folder showing installations of glass lined tanks, filters and mixers in prominent plants. The folder also shows a complete line of portable electric mixers, and a new glass lined electric mixing tank, which, it is stated, is a great improvement over previous models.

25 STEPS SELECTIVE

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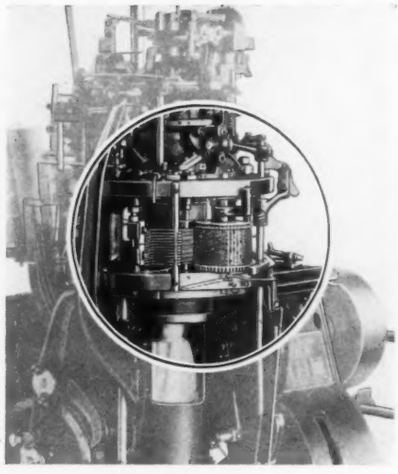
Only the most alert can keep step.

Built into an already comprehensive and economic system of machines the spiral mechanism with 25 selective steps is *the machine* for fancy effects.



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Patterns of the most delicate design—single needle stripes—dots—panels or clocks. All are readily made on this versatile machine.

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The Young Woman Selects Rayon garments of FINE FINISH

THE young woman of 1929 is a close follower of fashions. So she insists that the seaming of Rayon undergarments be correspondingly lovely.

Half-way measures will not satisfy this profitable demand. Use Willcox & Gibbs Machines. Then you may be sure that the finish of your production will please the most fastidious.

Willcox & Gibbs cooperates with manufacturers in Rayon by supplying a machine ideal for every seaming and stitching operation, on both men's and women's Rayon undergarments.

Write our Home Office for samples made on these machines, or submit your own fabrics for sample purposes.

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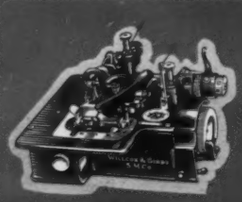
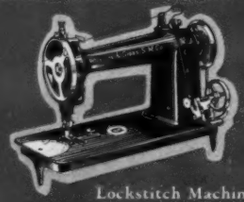
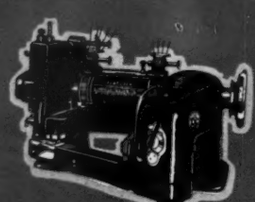


Overlock Seaming and Hemming Machine



Lockstitch Machine

Shell Scalloping Machine



Flatlock Machine

"Genuine W & G Needles are the most economical"

Cleaning *and* Lubricating *FULL-FASHIONED MACHINES*

By F. K. Fogleman
Technical Writer, Textile Machine Works.

A FULL-FASHIONED knitting machine may appear on the surface to be a very simple machine which requires only an operator and little attention. Such is not the case, however, for it is a precision machine; one which requires constant care and attention from its operator. Any machine, no matter how simple or durable its mechanism might be, if neglected or abused will deteriorate rapidly and require frequent repair or replacement. The fact that all manufacturers of full-fashioned hosiery desire to produce the best fabric that it is possible to make should cause them to see the necessity of keeping their machines clean, free from rust, and properly lubricated.

Rust, if allowed to form on needles and narrowing points, will cause cuts in the fabric and will, therefore, necessitate the frequent renewal of these parts. Improper lubrication will add to the operating troubles and cause the production of bad fabric. It is with the thought that some of the ideas expressed herein might be worthwhile to the manufacturers of full-fashioned hosiery and to the machine operators that the problem of proper cleaning and lubrication is discussed.

THIS article interrupts the series on full-fashioned manufacturing problems by C. H. Baxter. However, this series will be resumed in the June issue and carried through to completion.

Mr. Fogleman's article, herewith, supplements the discussions of Mr. Baxter's series by covering a phase of machine operation which is essential to efficiency—cleaning and lubricating the working parts. He gives a schedule for cleaning full-fashioned equipment, as well as a program of lubrication, including recommendations as to the types of lubricants—oils, greases, etc.—which have been successfully applied in mills to the various parts of the machine which require this attention.

Readers are invited to submit inquiries or comments concerning any suggestion or other point in this article, and the discussion department is open for the exchange of methods of performing this essential work.—The Editor.

* * *

A Cleaning Schedule

FULL-FASHIONED knitting macines should be cleaned thoroughly every four to six weeks in order to obtain the best results in operation. Care should be exercised to see that all rust is removed from the carrier rods and narrowing rods. Carriers and all rods with which the thread comes into contact should be thoroughly cleaned. Sinker-heads, catchbar, narrowing heads and splicing shaft should be cleaned likewise. It is a good idea to carry the cleaning process to the point of wiping the grease and dirt from all cam rollers and levers, and not to confine it entirely to the loop forming elements. The cam rollers should be wiped free of oil and fresh lubricant put on after the cleaning is finished.

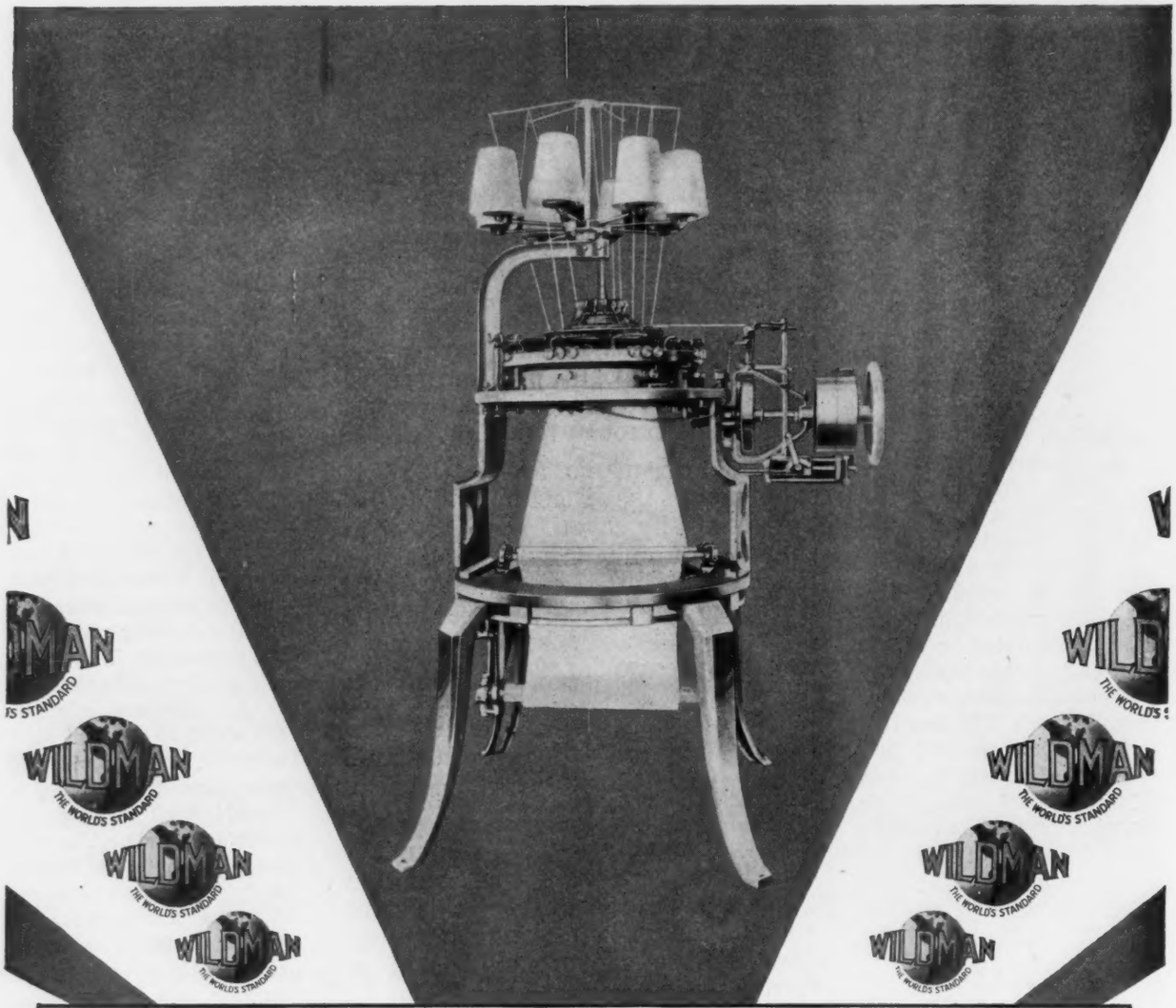
Waste may be used to clean the machine but rags will be found to be more satisfactory for cleaning the sinker-head as particles of waste are likely to get between the sinkers and dividers and thus clog the slots. It is probably better to use waste for cleaning shafts, cam levers and rollers as it is more absorbent and the amount necessary for the cleaning process is not so great as it would be if rags alone were used.

An ammonia solution, say about 50 per cent each of water and ammonia, and very fine emery cloth (grade 000) are good cleaning agents. The ammonia removes the greater part of the rust and makes it an easy matter to remove the remainder with emery cloth without causing injury to any of the parts. Use the waste or rags to apply the ammonia and rub vigorously. It is best to wipe the parts after this application in order to remove all ammonia that has not been evaporated. This method is quite trying on those who come into close contact with the ammonia; but it furnishes the best and most economical means of cleaning.

Possibly the best method of carrying out the cleaning operation is to use six or eight men and assign each man two or three sections of the machine and make them responsible for the cleanliness of their respective sections. With this arrangement it should only take from one and one-half to two hours to clean a machine thoroughly. It is best to let the knitter clean his narrowing combs and points since the regular cleaner may not be a knitter and might possibly upset the setting of the narrowing gear or bend the points out of alignment.

Some Mills Use Apprentices as Cleaners.

A plan that might be very effective in some mills would be to use apprentice knitters as cleaners for a short time. In this way they would become familiar with the machine and with the parts that must be kept absolutely clean in order that a flawless fabric might be produced. This would also show them the



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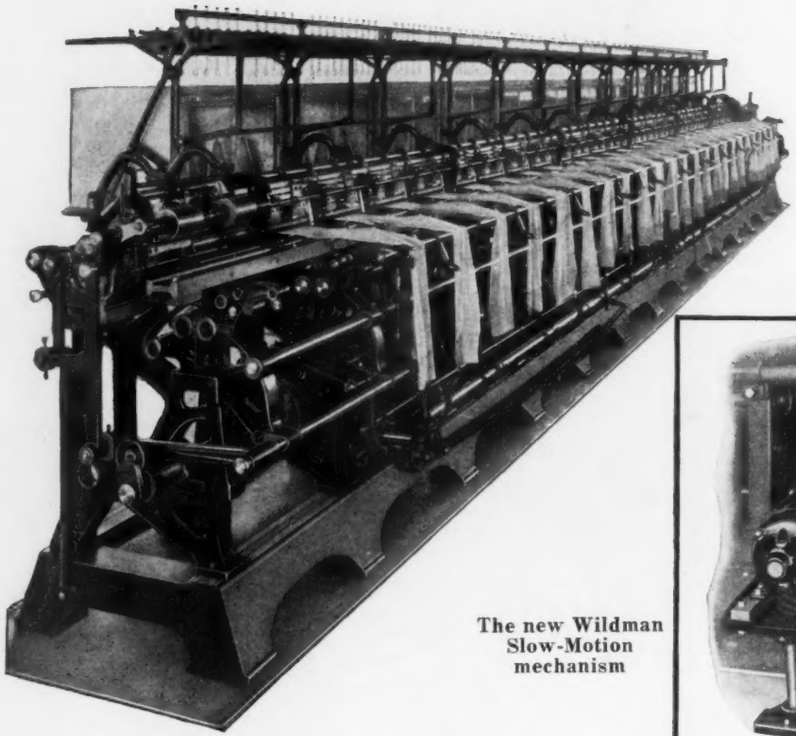

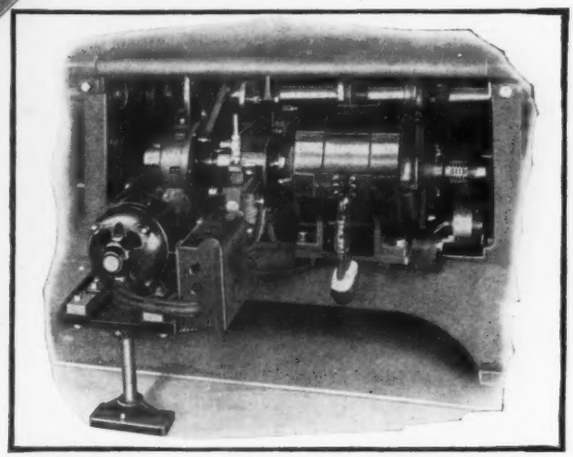

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ONE of the main outstanding developments embodied in the Wildman Full-Fashioned Hosiery Machine is the slow-motion mechanism.

This new drive makes turning so easy that no effort is required. A child could perform the operation.

Levers take the place of the hand wheels, and only a touch is necessary to make the slow-motion mechanism function. A slow-drive motor turns the larger motor slowly, operating the machine at slow speed for as long a time as may be required. A magnetic brake, a part of this mechanism, is applied when the current has been turned off. The brake also grabs when a fuse is blown, preventing the machine from running backward.

This and other features assure economical, rapid production of clear, beautiful hosiery.

Write for further information, Wildman Mfg. Co., Full-Fashioned Division, Norristown, Pa.

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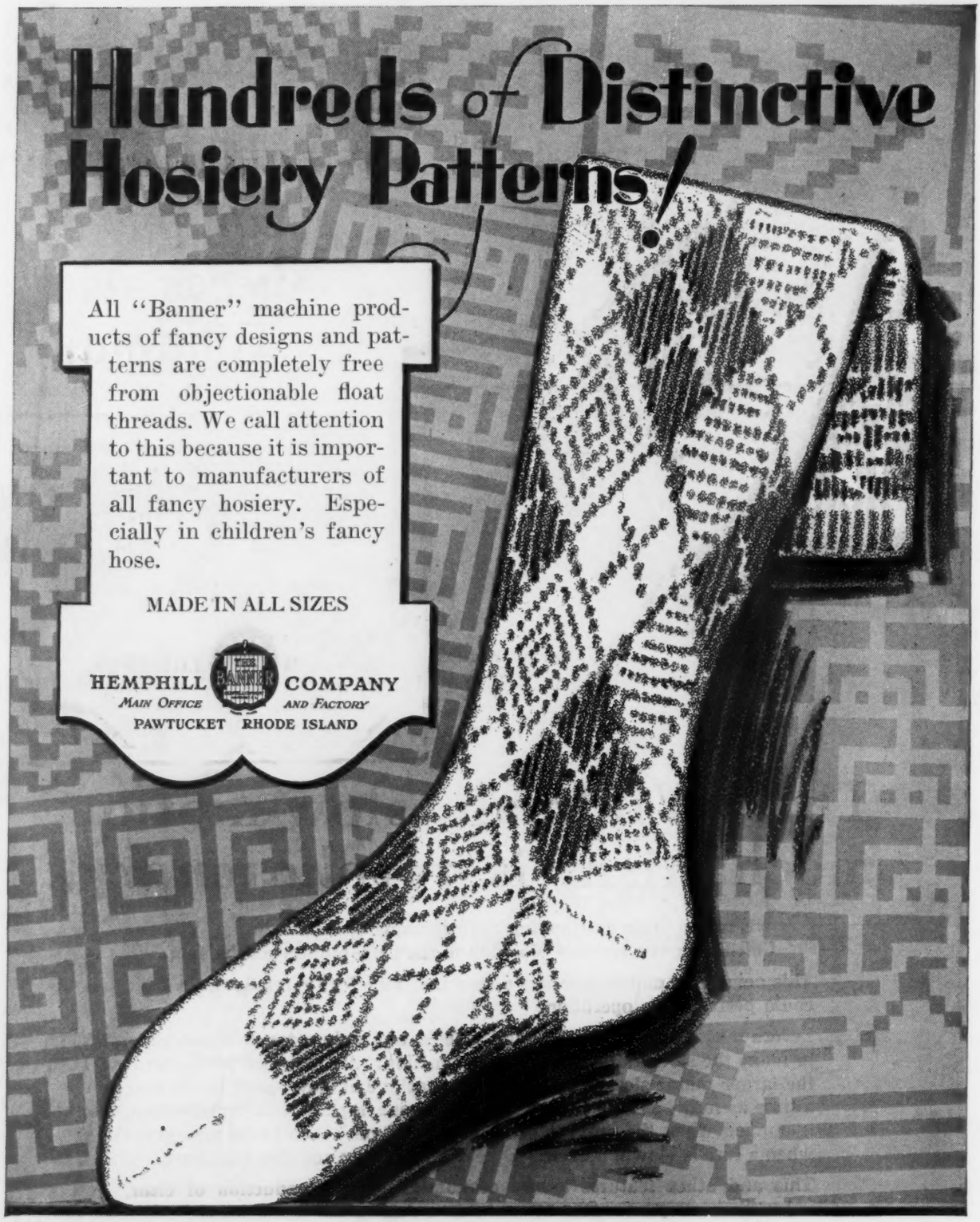

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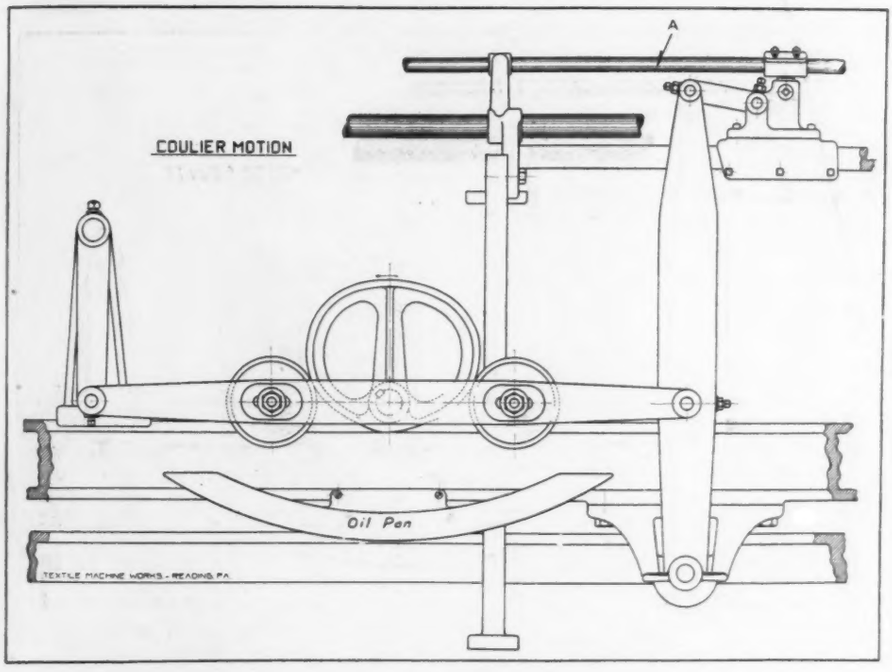

Fig. 1.

accuracy with which the full-fashioned knitting machine performs its task and instill into them the necessity for doing things correctly. The root of quite a few of the operating troubles encountered in full-fashioned knitting will be found to lie in the accumulation of dirt on some delicate part of the machine. Keep the machine clean and it will serve long and well.

A Plan of Lubrication

CORRECT LUBRICATION is, perhaps, never given the consideration that it deserves. Not only is this true as applied to the knitting machine, but to other machines as well.

The proper lubricants to be used on the various parts of the full-fashioned knitting machine are as follows:

For the needles and narrowing points use a high grade stainless, or high grade needle, oil. These oils are usually highly refined petroleum products combined with neatsfoot or other fixed oils such as lard oil. The object is to produce an oil that will not ordinarily show spots on the fabric. If any spots are shown, however, they may be easily removed in the dyeing and degumming processes. This quality is essential as the fabric must be dyed or if ingrain silk is used it is even more essential.

Oils for lubricating bearings, sinkers, dividers, coulier motion, cock-box bar, and narrowing spindles should be a light machine oil having a viscosity of about 200 seconds *Saybolt* at 100 degrees Fahrenheit.

The splicing shaft, (A, Figure 1), on which the friction boxes slide, should be lubricated with castor oil. This oil furnishes ideal lubrication for these boxes as it does not glaze the leather friction shoes and possesses the adhesive quality necessary to allow the proper operation of the friction boxes. Since castor oil has a tendency to gum when allowed to remain on the shaft for any great length of time, the friction boxes will work in a more satisfactory manner if the splicing is cleaned every two weeks. Gears which mesh should be oiled with a viscous lubricant that will not be easily thrown from the teeth by centrifugal force or displaced by rubbing and squeezing. This lubricant should be of such viscosity as not to flow appreciably under ordinary temperatures.

Chains should be oiled with a heavy lubricant having a viscosity of approximately 300 seconds *Saybolt* at 100 degrees Fahrenheit.

A light form of cup grease will be found to give best results on the coulier gear and pinion.

Regular Schedule is Necessary.

In order to be sure that all parts are properly lubricated at all times it is best to have a regular sched-

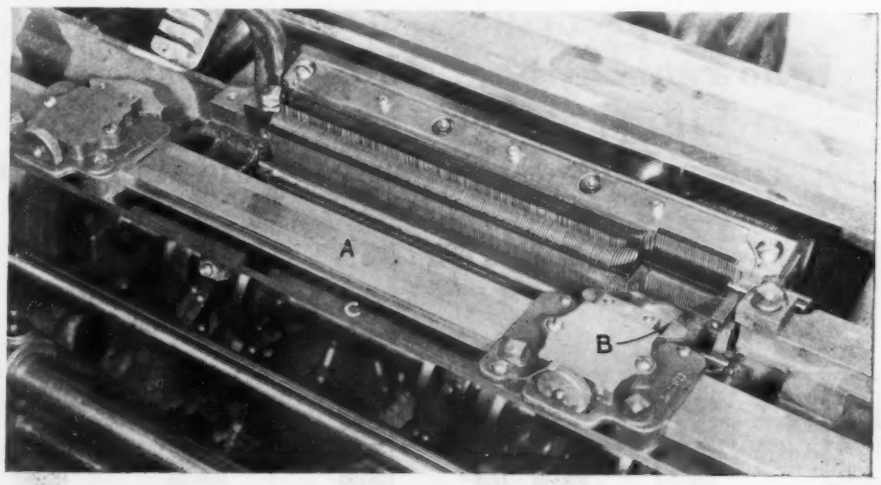

Fig. 2.

Sox tops that help sales

THE customer in a retail store may never see the foot—but he does see the sox top . . . And as this photo shows, note how much these Multi-Design patterns and colors add to the salability of the goods . . . Every hose manufacturer, interested in helping his retail outlets to sell more goods should investigate the Multi-Design True Rib Machine and its product.

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FIDELITY

ule to follow. The following suggestions are made as a basis for some definite system of lubrication:

All bearings, cam rollers, narrowing spindles, and all other moving parts should be oiled at least two times per week. This should be done, preferably, on Monday and Thursday, as such a schedule would divide the week into two convenient periods.

Jacks, sinkers, and dividers, shown in Figure 2, will function better if lubricated at least once each week.

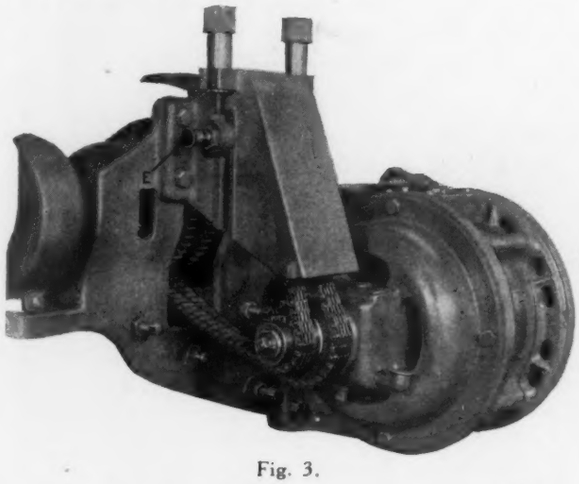


Fig. 3.

Special care should be taken to see that the surface between the slide A and connecting bar C (Figure 2) is well oiled with a heavy lubricant or light grease. The clearance between these parts is so small that they are likely to "freeze" if not properly oiled.

It is only necessary to apply fresh grease to the coulier gear and pinion at the time of cleaning the machine, provided the machine is cleaned as frequently as set forth in this discussion.

Chains and meshing gears give better service if lubricated every month.

It is best to add a little oil each week to that which is in the oil pan (Figure 1) which furnishes lubricant to the coulier and cam and rollers. This pan should be cleaned out and fresh oil put in every eight to ten weeks. Proper lubrication of this cam is to be stressed for is properly oiled, excess wear will be prevented and the motion will retain the same amount of horizontal travel indefinitely. It is best to use oil soaked waste in this pan.

On machines having a disc clutch drive, as shown in Figures 3 and 4, careful attention should be given to its correct lubrication. See that the oil reservoirs in the ring oiled bearings A (Figure 4) are always supplied with the proper grade of bearing oil. Be sure to put enough oil in the reservoirs to enable the rings to carry it to the clutch shaft. Always keep the grease cup E, (Figure 3) and the one at G, (Figure 4) filled with grease and see that they are adjusted regularly in order that the ball bearings and the sprocket bushings might be supplied with the proper amount of lubricant.

As a means of preventing the rebounding of sinkers, commonly known as "sinkers flying back," in machines that are not equipped with the spring bar attachment, an application of lard to the striking jack heads about once a week will be found to be very effective. A reasonable amount of attention to this matter will help to prevent sleazy knitting.

Rust will be prevented from forming on all finished surfaces during the week-end period if they are rubbed with an oily rag. This is absolutely essential in the case of thread guide rods, narrowing rods, and narrowing spindles.

A man whose duty it is to see that all machines are properly lubricated should keep all oil reservoirs of main bearings, such as, drive shaft bearings, camshaft and handwheel shaft bearings, filled with the proper amount of oil. He should also oil the cock-box bar, or slide, A, (Figure 2) daily in order to prevent

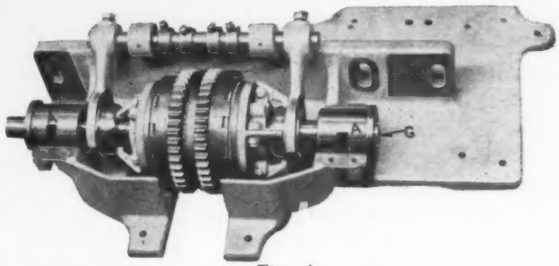


Fig. 4.

wear of the cock-boxes. The striking surface of the slurcocks, B, should be oiled at the same time. It should be the duty of the knitter to see that all other bearings, cam rollers, narrowing spindles, and other parts are properly oiled.

As a means of preventing rust on needles and narrowing points while the machine is idle at night, each knitter should apply a thin coat of needle oil to these parts by means of a brush a few minutes before leaving the plant for the day.

If the foregoing procedure is adhered to the useful life of the machine will be increased; frequent repairs will not be necessary; and a better fabric will be produced.

Franklin Uses Cooperative Advertising.

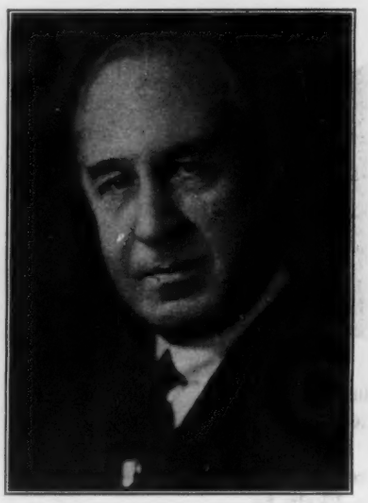
Franklin Process Co., Providence, R. I., announces a cooperative advertising services to users of Franklin Process colored yarns. Free listings in the company's 1929 directory of fabrics containing Franklin Process colored yarns will be made for any mills desiring them. This directory will be mailed to a list of about 600 retailers, wholesalers, and cutters, and distributed upon request by means of an advertising campaign in leading journals. In two magazines four-color process reproductions of representative fabrics will be carried. This service applies not only to mills with branded products, but in the case of those fabrics sold through agents or to converters. Fabrics carrying Franklin Process vat colors or the Franklin Process fast color label will be given special prominence in the listings, either in the form of a "starred" listing or bold face type.

Knitters Meet *at* Philadelphia

John Wyckoff Mettler Re-Elected President and Other Officers Named; Year of Active Service is Reported for Association

THE regular annual convention of the National Association of Hosiery and Underwear Manufacturers, held in Commercial Museum on Thursday, April 18th, was significant in that it represented the 25th annual meeting—or the Silver Jubilee Anniversary of the organization. Additional distinction for this meeting was that its reports reflected a year of increased activity and service on the part of the organization; and that Knitting Arts Exhibition, in conjunction with which it was held, was certainly the largest and likewise the most successful exposition yet conducted under the Association's auspices.

Managing Director John Nash McCullaugh several years ago instituted the practice of confining the annual convention to a short session during the forenoon, concluding with a luncheon immediately following the business session. This arrangement prevailed this year and further comment as to the advisability of the plan was heard.



J. W. Mettler, Re-elected President.

Officers were elected at the conclusion of the business session, John Wycoff Mettler, president of the Interwoven Stocking Company, New Brunswick, N. J., being named to succeed himself as president for another year. George F. Dickson, of the Minneapolis Knitting Works, Minneapolis, Minn., was made first vice-president, the position made vacant by the death of J. Ogden Wells. J. B. Lesher, of the Unrivaled Hosiery Mills, Williamstown, Pa., was re-elected second vice-president, while Ernest Blood, of the Tru-Shape Hosiery Mills, Philadelphia, was again named treasurer. Directors elected to serve two years were the following: H. N. Gwyn, Cadet Knitting Mills; W. Park Moore, Hancock Knitting Mills, Richard W. Sulloway, of Sulloway Mills, and Grover C. Good, of the Globe Knitting Works.

The first feature of the morning session was the report of the treasurer, Ernest Blood, which showed the Association to be in splendid financial condition. This was followed by the address of the President, Mr. Mettler, who combined a report of the Association's activities with some interesting observations on the industry's needs, in presenting his paper. Taking up first the activities and accomplishments of the organization, he said in part:

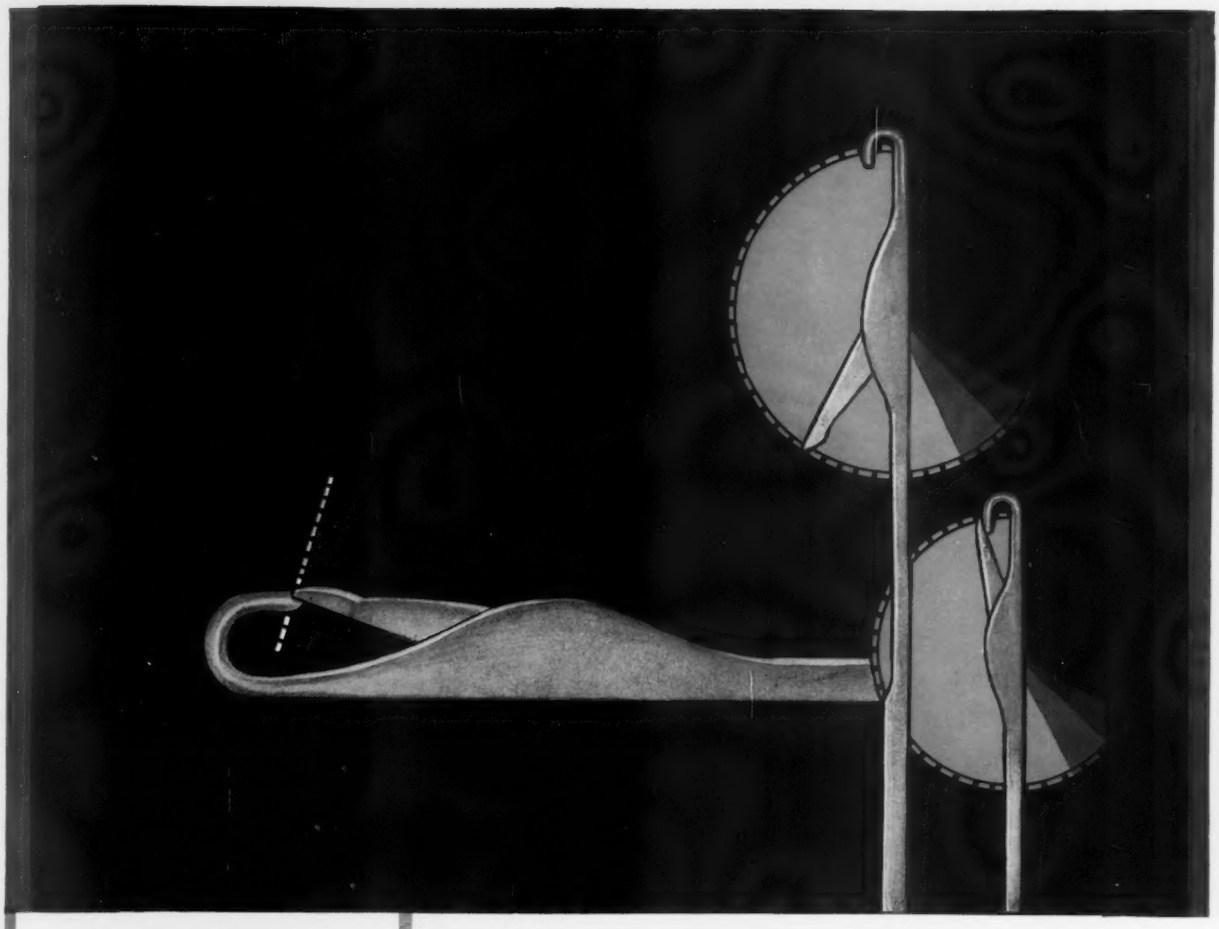
"During the year your Association has continued and still further developed its various forms of service to its members, consisting of its research laboratory work, its credit and collection work, its service in cost estimating, standardization, arbitration, and its Special News Letter. In addition to these well-established services, the managing director is being called upon more and more for advice as to merchandising, advice as to combinations and general business operation, and considerable careful attention is being given to style, fashion, color and design for the use of members.

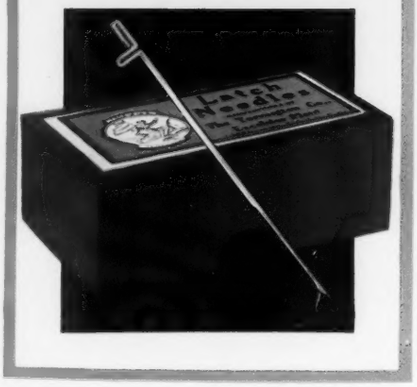
"One of the outstanding activities of the Association this year was the handling of a bankrupt estate, in which hosiery members were committed to the extent of $215,000, every dollar of which was recovered for the members in cash—not notes. In addition, the Association, through its managing director, had the experience of buying, styling and revamping the merchandise channels, through which the bankrupt business had to progress in order to get back on its feet, and the business was turned back on a better paying basis than at any time in its past and now continues successful.

"Checking costs for members is a feature of the Association's work which has become extremely active. Any member can send in his material cost and productive labor cost on a given number and the Association will set up what his final manufacturing cost should be and what his selling price should be. In a recent checkup on this work, covering a line of 35 items for one mill, the Association's estimate was never more than a few cents a dozen out of the way as compared with the mill's own actual costs. Your Association is probably the only organization attempting a service of this kind.

"A service of no mean value has been the purchase of large amounts of silk for the members of the Association, as well as advice in buying silk, through which members have gained important competitive advantages.

"One of the best jobs that this Association ever accomplished was the standardization of descriptive terms, setting up definitions all along the line. This developed so gradually and logically as to be almost unconsciously accepted and adopted by all. Every manufacturer who is in business to stay dislikes to find himself pitting honestly made and correctly labeled goods against goods that are neither honestly made nor correctly labeled. Just as there are merchants who will take lower grade goods and sell them as higher grade, so there are irresponsible manufacturers, usually those who have little of their own





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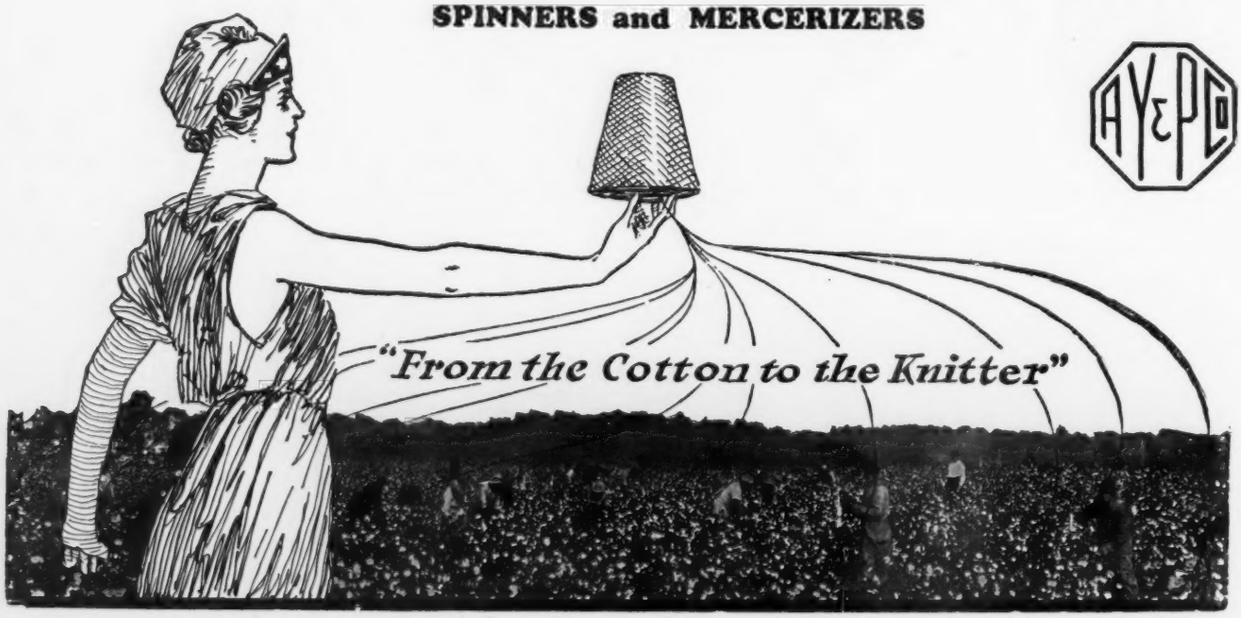


Tribute to J. Ogden Wells

"DURING the year just ended, this Association, and the hosiery industry in general, has suffered a great loss in the passing of one of its very finest men—J. Ogden Wells—its vice-president. He was president of the old and honorable business of Cooper, Wells & Co., St. Joseph, Mich.; a graduate of Harvard; a member of Roosevelt's Rough Riders and wounded in the Battle of San Juan Hill. Courageous leader of an important branch of our industry during the difficult trade conditions of the World War, Wells easily won the admiration and friendship of everyone who came in contact with him and who now join in honoring his memory."—From the address of John Wyckoff Mettler, president, National Association of Hosiery and Underwear Manufacturers at Philadelphia, April 18th.

money in their business, who will seize every opportunity for sharp practice in labeling or describing their merchandise. Even rulings of the Federal Trade Commission have become more consistent, more reasonable and yet more effective through the information on definitions and descriptions which has been furnished them, through cooperation, by this Association.

The Tariff Situation.

"In this particular year no doubt the most important work of the Association has been in connection with the tariff. Mr. Richard V. Sulloway, a director of this organization, and I personally attended the Tariff Hearings, before the Ways and Means Committee, recently held in Washington, and I am sure that many of you who might have been present at these hearings would have been not only satisfied but very much pleased with the presentation made by Mr. McCullaugh for each of the various schedules. We, of course, witnessed the hearings of many other branches of the textile field and I can assure you, beyond all doubt, that Mr. McCullaugh's brief, clean-cut and direct presentation was far better received than any we heard, notwithstanding the fact that many distinguished representatives spoke at length, and some of them at altogether too much length, in behalf of the textile trades. The nature of the questions asked on cross-examination; comments from the rostrum and conversations since the hearing appear to fully justify confidence in the outcome.

"In my opinion, correct valuations, to make the Tariff effective, are just as important—if not more so—as the tariff itself. There is no use in having ad valorem tariff if the goods are under-valued by the shippers. Certainly and obviously there is a lot of under-valuing going on to defeat the intended tariff —and—the 'running mate' to this evil is the bounty on exports which is in operation in certain foreign countries for the definite purpose of offsetting the protection which the tariff is supposed to afford to this country.

"And—why all the alarm among the importers one reads about—'Lest American Valuations Be Adopted' —why should there be fear about that? If they are on the level of sound valuation there should be nothing to lose by the change. Let me read to you a quotation from the New York Times, April 4, page 47:

"TARIFF REPORT CHEERS IMPORTERS AND RETAILERS WHO MAKE THEIR FOREIGN PURCHASES DIRECT.

Importers and retailers who make their foreign purchases direct were considerably reassured yesterday by report from Washington that the present basis of valuation would not be disturbed in the tariff revisions soon to be presented, etc."

"The experience of the tariff board clearly shows that checking foreign valuations is next to impossible, but we de believe some means may yet be devised by this Association, in cooperation with the National Government, for reasonable protection against undervaluation for the purpose of tariff evasion.

"While most divisions of the industry are in a generally satisfactory condition, the most difficult present day production problems appear to lie in the manufacture of seamless fancy half-hose and in the general slack condition of the infant's goods business.

"Many manufacturers who transformed their production from staples to fancies went right on figuring their costs of fancies on the same basis as staples. They failed to comprehend the many items of added cost in making fancies which mills experienced in this type of production have worked out from actual records.

Let me cite you a dozen of the most easily traceable items:

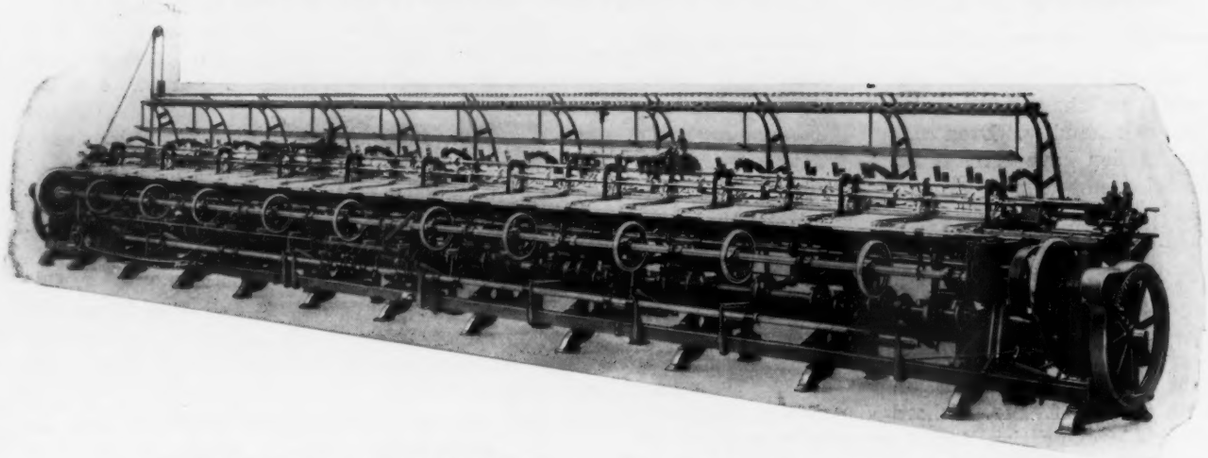
(1) The cost of securing authentic style information.
(2) The cost of making experimental samples—seldom fully realized.
(3) The variety of materials used—with consequent leftover yarns.
(4) The extra cost of salesmen's samples—running from ten to twenty times as large as for staple lines.
(5) The extra factory cost for machine fixers, (1) due to change of pattern, (2) due to extra attention for operating machinery, to curtail seconds.
(6) Loss of production of profit-paying goods of first quality, (1) due to pattern changes and (2) due to seconds knit in place of firsts.
(7) General increase in non-productive labor for necessary extra supervision and extra inspection.
(8) Extra capital requirements.
(9) Extra cost of larger sizes required on fancies than on staples.
(10) *Direct loss* on seconds sold below actual cost of production *in addition to* loss of profit due to a larger percentage of seconds being made in place of firsts.
(11) Loss on leftovers sold as jobs.
(12) Last, but not least, depreciation of fancy knitting machinery over staple knitting machinery.

"Discussing the two most potent of these extra costs for fancies, does anyone know the correct depreciation on fancy knitting machinery? One of the most successful mills, which regularly depreciates staple machinery on an eight-year or 12½ per cent basis,

SOMETHING NEW!

A Product of the Largest Flat Knitting Machine Builders in Germany—

The SEYFERT & DONNER High-Speed Full-Fashioned HOSIERY MACHINE



WE are glad to announce to the Trade that we are the Sole Selling Agents in the United States and Canada for the SEYFERT & DONNER High-Speed Full-Fashioned HOSIERY MACHINE. This remarkable Machine is built in any gauge and with any number of sections. It has a specially constructed Jack Head and Slur Cocks to insure a uniform stitch. Sixty-five Courses per minute, with the largest possible production of FIRSTS. Simple to operate.

The SEYFERT & DONNER Machine, as well as the celebrated EINSIEDEL "REINER" High-Speed Full-Fashioned HOSIERY MACHINE, can be seen any day in operation in our Factory Sales Rooms in Weehawken. We cordially invite you to visit us and examine these Machines for yourself.

ROBERT REINER, INCORPORATED

550-564 Gregory Avenue

Weehawken, New Jersey

(In sight of the Woolworth Tower)

Founded 1903 **Phones: Union 502-503-504**

Telegraph Address: "REINER", HOBOKEN, NEW JERSEY

ON Wednesday afternoon of Show Week at Philadelphia, an unusual kind of meeting was held. It brought together representatives of full-fashioned hosiery manufacturers operating union labor mills, and representatives of the union, the American Federation of Full-Fashioned Hosiery Workers. The purpose was a common discussion of the present union wage scale and other matters. Joseph Haines, Jr., president of the Haines Hosiery Mills, Philadelphia, spoke on behalf of the manufacturers, and Gustave Geiges, president of the workers' Federation, represented that element in the meeting. Mr. Haines discussed present day conditions, advocating the institution of the two-machine plan of operation, and pointed out that changes must be made in the present conditions to enable mills to produce at a satisfactory profit and under conditions helpful to both mill and operative. Mr. Geiges responded speaking fairly and frankly, stating labor's views in the matter. The impressions resulting from the meeting were very favorable on both sides, and a committee to consider further the points developed was appointed, and will meet in New York at some early date, it is understood.

depreciates its fancy machinery on a three-year or 33 1/3 per cent basis, and depreciates all seasonal attachments on the same basis as machinery repairs, or, in other words, as an expense item. Experience over from five to six years seems to clearly justify the 33 1/3 per cent as the only safe basis, and certainly none too heavy, for depreciation on fancy knitting machinery.

"And who can give you an accurate estimate of the proper percentage to allow for seconds and sewed goods in the production of fancy half-hose? Again quoting from the actual records of one of the largest and most successful manufacturers of these goods, the percentage of seconds and sewed goods, combined, on fancy half-hose, based on production of millions of dozens, runs just exactly three times as high as for staples manufactured by the same organization. It is needless to say that these proven percentages are too large to be left out of consideration and many manufacturers who are totally ignoring these vital cost figures must sooner or later wake up dead.

"Just as fancies are the greatest factor in the half-hose business for the time being, so, in turn, *styling* becomes the greatest problem of this branch of the industry. Style consciousness is rapidly developing on the part of the consumer and correct style information is just as necessary as good taste in style interpretation. The day of hit or miss styling has passed. Copying of styles already on the market simply means copying styles that are already obsolete. Present day styling calls for the systematic securing of authoritative style forecasts as the basis for originating designs in conformity with the style trend. It also calls for the testing out of all new designs through the sales force with leading stores, which, perhaps, can best be done by getting the salesmen's samples on the road early enough to secure actual orders well in advance of quantity production.

"All information available on the unsatisfactory condition of the infants' hosiery branch appears to indicate inadequate tariff protection as the principal source of their troubles.

Two Elements to Consider.

"Now, I want to call your attention to 'two very contrary phases of merchandising progress discerned in the present distribution picture which may extend to the hosiery field. One is emphasis placed on *novelty of design and the importance of color*—while the other is a revival of the very old-fashioned idea of *utility.*' We all know the strides have been made in pushing new designs and in featuring color. The theory of style obsolescence has so developed that the modern product is *not worn out, it simply passes out of style.*

"There are those who think they sense a new move *to give utility its former value.* 'What seems to be happening is that many large volume producers are striving hard to promote larger sales through superficial changes in their products, while some progressive producers are at work to discover and furnish what will give *the best service.*' Look out for this—it will need watching.

"While there is an element of doubt in the possible excessive absorption of credit for speculative uses, the fact remains that we are enjoying a period of very broad demand and the general outlook continues favorable. Last month the steel output ran up an all-time record and the cotton goods figures for March showed sales exceeding output by 20%. The railroad freight-car loadings for the first quarter showed a gain of about 3% over the same period last year and are expected to show a larger gain for the present quarter. Even the farms appear to be *relieving themselves*—for—(without waiting for Congress) the farm implement group figures a gain of about 10%. Certainly the immediate outlook is hardly hazardous and, with reasonable caution, confidence should continue to prevail."

The next speaker was Fred W. Shibley, vice-president, Bankers Trust Co., New York City, author of "The New Way to Net Profits." A brief resume of Mr. Shibley's address will be found in a forthcoming issue of COTTON.

Douglas Walker, director, intelligence bureau, National Raw Silk Exchange, was the concluding speaker of the morning, who discussed the subject of trading in raw silk futures, explaining how this is carried out in his organization. With the election of officers following Mr. Walker's paper, the meeting adjourned for the luncheon, which was attended by some 500 knitters, exhibitors and guests. Musical entertainment was provided by the Sweet Adeline singing orchestra, and Rev. Alonzo Ray Petty spoke on the need of honesty and enthusiasm in business.

Silver Jubilee Show is Success

Style and New Inventions Emphasized in Displays at the Knitting Arts Exhibition in Philadelphia April 15 to 20

DURING the week of April 15th, Philadelphia was the Mecca for the knitting industry and its allied trades. The occasion was the 25th Silver Jubilee Knitting Arts Exhibition, in operation at the Commercial Museum in West Philadelphia, which has been its home for most of its perennial life. The Exhibition this year measured up fully to whatever additional demands were made by the natal occasion, and every element contributed toward making the 25th Show the largest and most successful of all.

To say that this year's Show was the largest on record can be proven definitely in an increased number of exhibits, as well as by the fact that for the first time it was necessary to utilize space back of the knitting machinery exhibits to house additional booths. The attendance likewise responded in full measure to the occasion, and exhibitors reported complete satisfaction in the amount and range of interest displayed by representatives from all parts of this country and Canada, as well as Europe.

Chester I. Campbell, Gen. Mgr.

In this attendance, perhaps the largest delegation outside of those in close proximity to Philadelphia came from the South, which continues to forge ahead in the expansion of the knitting industry, with respect to full-fashioned manufacturing as well as the seamless and underwear divisions. Special cars from Chattanooga and other southern points brought delegations of knitters and southern representatives to the show daily, and during the five full days during which the exhibit was in operation, these and the other visitors displayed a serious type of interest which resulted in profit alike to themselves and the exhibitors.

Starting under way on Monday with a healthy attendance, the crowds increased as the week progressed, and the attendance perhaps reached its height of value and size on Thursday, on which day the annual convention of the National Association of Hosiery & Underwear Manufacturers was held, drawing in a particularly large number of hosiery and underwear knitters who attended the Exposition following the brief morning session of the convention and the luncheon.

It is needless perhaps—though most well deserved—to record at length the efficiency and altogether satisfactory way in which the Exposition itself was conducted. Exhibitors have come rather to expect of Chester I. Campbell and his associates that every small detail be arranged in advance. Conducted under the auspices of the National Association and its special exhibition committee, and under the personal direction of Mr. Campbell, the Knitting Arts Exhibition is so operated that exhibitors are relieved of every small and irksome detail to interfere with the proceedings of the week. Beautiful and appropriate decorations, a sensible and convenient arrangement of booths, and prompt, courteous attention to details are characteristics which have made it conspicuous among the regular exhibitions in the field.

It would be impossible adequately to describe, for the reader who did not attend, the individual exhibits which together comprised the whole exposition, for such detail would require too much space and time. However, it may safely be said that as a whole the exhibits reflected the latest in machinery equipment and supplies.

The knitting machinery represents of course the keystone of the exhibition as well as of the industry, and the working exhibits of this machinery were the chief general centers of attraction. The body machine manufacturers were on hand with equipment showing the latest in refinements and attachments. The hosiery machines, of all types, were shown, most of them emphasizing, particularly in the half-hose division, attachments and motions designed to permit of more flexibility and adaptation to style changes and demands.

Amplifying the seamless and circular machine displays, there were two different types of full-fashioned equipment in operation during the week. Last year there was one and another was added at this show, and in addition the representatives and manufacturers of other makes were on hand to discuss as well the features of their contribution in the way of equipment to this rapidly expanding phase of the knitting business. Practically every manufacturer of full-fashioned machinery represented apparently is worried as to deliveries, due to the continuation of demand for equipment of this kind. The seamless and circular divisions likewise reported busy times, especially on those types which meet the demands of present day style.

Auxiliary equipment in the form of loopers, winders, seamers, sewing machines, boarding forms, drying equipment, dyeing machinery, electrical equipment, extractors, floor cleaning machines, water softeners, buttonhole machines, testing equipment, stop motions, counters, transfer equipment, etc., etc., comprised most of the working exhibits. Every exhibitor presented the latest development in his line of equip-

A General View of a Section of the Knitting Arts Exhibition in Philadelphia, April 15th to 20th.

ment and supplies for textile mill use.

There were, also, the customary exhibits of soaps, chemicals, dyestuffs, strapping, cones, felts, lithographing, steel tables and other equipment, marking machines, etc., etc., presenting not only the displays of all of these products, but as well the presence and services of experts in each line, giving the opportunity for mutual discussion of subjects between these specialists and the knitters in attendance.

An interesting feature of the Exhibition this year was the presence of several manufacturers and distributors of various types of mending needles, some hand operated and others mechanical, for mending runs in hose.

And then the usual full representation of yarn and thread manufacturers, including producers of materials from practically all fibers, as well as displays of control equipment, needles, and scores of various attachments and supplies not previously listed specifically, including humidifiers, special lighting equipment, Monel metal applications, labels, etc., etc.

Rayon and its products formed a very significant part in a great number of the displays. Most of the leading manufacturers and many distributors were represented in reception booths and displays. There was one exhibit, in operation, of rayon manufacturing machinery. In more than half of the booths rayon was in evidence, in knitting machines in the production of hosiery, tubing and other fabrics, in the chemical displays in showing the application of each product to this fiber itself and in combination, and as an element of style in many of the fabrics and products being made and on display.

E. M. Schencke, research associate of the National Association, located at the Bureau of Standards in Washington, maintained his usual comprehensive display of exhibits and demonstrations of the ramified research service of the association for its member mills.

Many intimate sidelights, special entertainment features, gossip and trade news—all of which would form an interesting story in itself—and lots of other details, all contributed to making the Exhibition Week in its entirety and in almost every detail a complete success.

Celanese Corporation in New Offices.

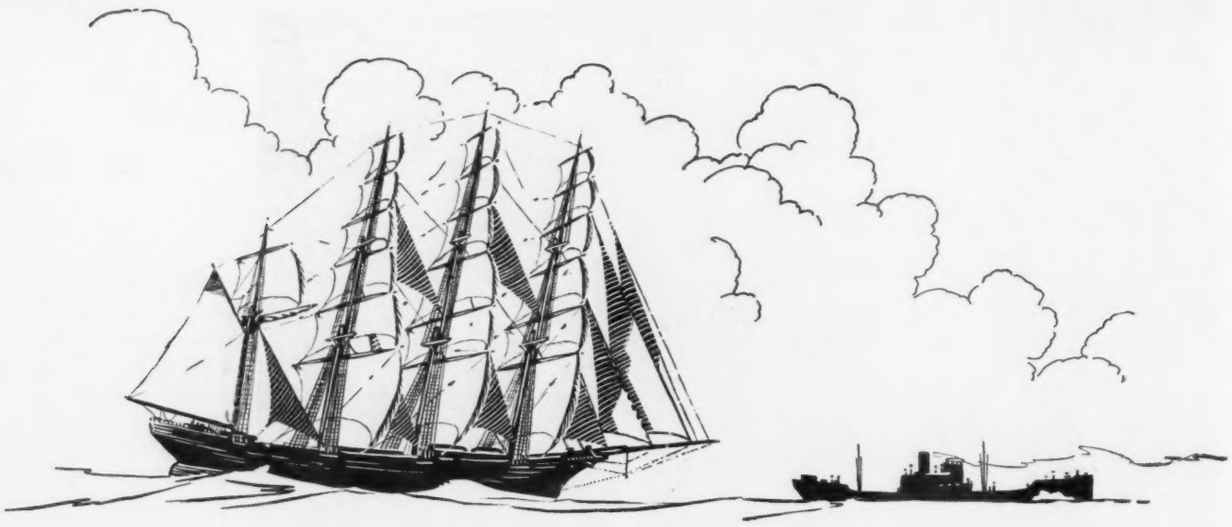
The Celanese Corporation of America has removed to its new offices at 180 Madison Ave., New York City, from the former quarters at 15 East 26th Street. The new offices provide approximately three times the amount of space formerly occupied, this being made necessary by the continued growth of the organization. An adequate and fitting display of Celanese yarns, fabrics, and other articles has been established at the new headquarters.

Standards of the Hydraulic Society.

Standards of the Hydraulic Society is the name of a booklet published by the Hydraulic Society, and may be obtained from the secretary, C. H. Rohrback, 90 West Street, New York City. Commercial as well as technical material in the pamphlet is submitted as being the opinions and recommendations of the Society as to what is considered as good practice in the pump industry, it being recognized that the Society cannot and does not make or enforce any agreements that might be considered in restraint of trade or in violation of the Anti-Trust laws. This booklet contains pertinent techincal, commercial and engineering pump data.

"Chacelon" Name of New Cellulose Acetate Yarn.

The cellulose acetate rayon yarns of the American Chatillon Corporation will be known as "Chacelon", it is announced by Dr. D. M. Balsam, chairman of the company's board of directors. This yarn will be made in the large plant of the company at Rome, Ga., where an initial productive capacity of 7,000 pounds a day in the acetate plant is anticipated. The viscose yarn plant of the company will have an initial capacity of 12,000 pounds of yarn a day, it is stated.



The pride of the seven seas...

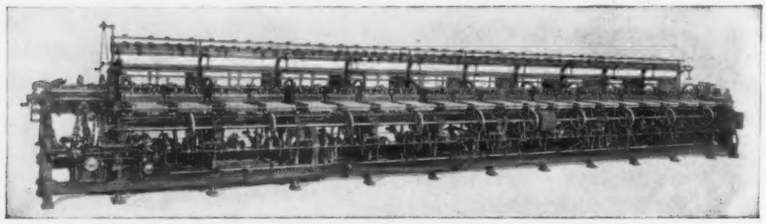
out-distanced by a lowly "tramp"!

Higher speeds, greater reliability, more tonnage!

In ships and in hosiery mills these demands of progress make equipment that once was the last word in productivity, obsolete and inefficient.

The markets, the styles, the competition of today demand machines designed for the needs of 1929—and of the future.

TEXTILE MACHINE WORKS, READING, PA.



A Reading 24 Section Legger. The full-fashioned knitting machine of 1929. Capable of producing the maximum number of "firsts" at the lowest possible operating and maintenance costs. Modernize your obsolete equipment with Readings.

The "READING"

Full-Fashioned Knitting Machine

Preparing *the* Goods *for* Dyeing

The Dyebath Must be Watched, as Well as the Chemicals, and Economy Must be Practiced During the Whole Operation

By Noel D. White
Article Twenty of a Series on "The A B C of Dyeing"

HAVING on hand a full line of the necessary dyestuffs selected for one's work, samples dyed in the laboratory to determine what colors enter in a given pattern shade, and a formula arrived at, the next step is to prepare a lot of goods to be dyed.

Different fabrics are dyed in different type machines; some are dyed by hand in open vats; if in skein yarn, it is put on sticks or poles, and either hung in a yarn dyeing machine or entered in a vat, and the yarn turned by hand in the dye bath; if in piece goods, the pieces are sewn together one after another and rolled on a beam, and set in place over the vat, then one end is pulled under the bath and fastened to an empty beam located on the other end of the vat and the pieces made to travel from one beam to the other under the dyebath, back and forth as many times as suitable to do the work properly. As it is done on jigs and other similar type machines, or if the pieces are suitable to dye in rope form, the pieces are dyed on a winch—the ends are passed over the reel, one piece beside the other, ends sewn together to secure continuous turning and the pieces kept separate one from the other by putting in front, above the vat, a wooden bar with holes in it to insert a wooden peg between each piece.

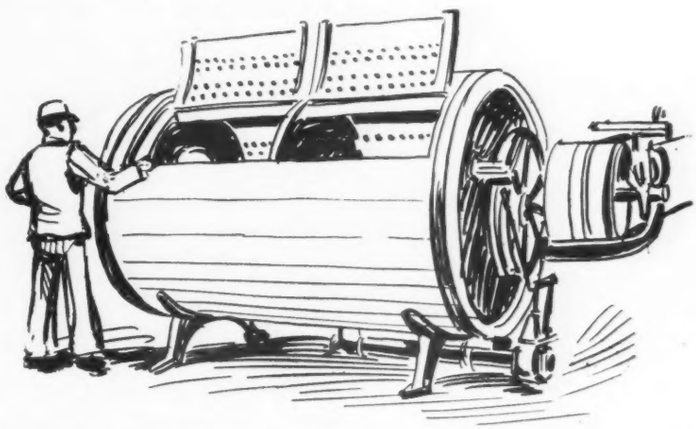
Knitted goods and single pieces of woven fabrics are dyed in open vats and turned in the dyebath with hand-reels, or on reels attached to pulleys so that one operator may watch several pieces at the same time. Hosiery is dyed in rotary drums, and in paddle wheel machines.

No matter what kind of fabric has to be dyed, and what machine is used in the processing, the material has to be well prepared in order to obtain quality dyeing.

Uneven dyeing, spotted, shady, imperfect work can almost always be traced to improper preliminary preparation of the goods. Properly prepared goods are more than half-dyed. If woolen material is on hand, scouring with the proper agents to free it from its natural grease is essential, and it must be thoroughly washed afterward; if cotton, boiling in kier or in open vats must precede the dyeing. Rayon, and other synthetic fibers must be scoured to remove all oils and other impurities used in their manufacture. Silk must be boiled off to remove the sericine, or gum covering the thread, also the throwster oils and tinting dyes, which would seriously interfere with the dyeing if not completely removed. The goods must enter the dyeing bath in as clean a condition as it is possible to obtain to avoid troubles.

Formulas on hand, the dyestuffs are carefully weighed out and dissolved in freshly boiled soft water. A dyestuff should be well stired and wetted out before allowing it to leave the drug room, to avoid having any dry particles carried away by the wind from windows, or fans, or currents of air, and lodge in some place where it is not calculated to have it. Goods are damaged if any of this dyestuff floating in the air should happen to alight on the goods lying around waiting to be dyed, or already dyed. The draft caused by a swirling hydro-extractor may pull some of it into it, and on the damp goods, and then the dyer may wonder where dyestuff spots have come from.

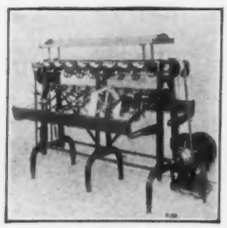
The goods are loaded in the machine, the vat is



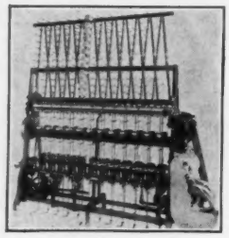
filled with water to the proper depth, allowing enough space for the steam used in boiling to add enough condensation without overflowing. In dyeing hosiery with rotary machines, the water should reach no higher than right under the shaft supporting the drum, and in paddle dyeing machines the bath should reach about four inches over the lower paddle to start with. By the time the bath reaches the boiling point there will be enough liquor in both cases for a complete bath.

Steam is now entered and the machine started; any dye aids the dyer chooses to use are added now: Turkey red oil to retard absorption of dyes; something to help penetration; phosphate of soda, if needed, to prevent too much of some direct colors to go on the silk at the start. These should be put in the bath now in the order named, and then the dissolved and strained dyestuffs are put in slowly and carefully while the drum is rotating toward the operator, remembering that the steam should be closed while pouring the dyestuff into the machine to prevent it from being shot through the goods before it is properly distributed in the dyebath; then the steam valve may be opened

Review These Rayon Workers

Start  with the winder for bobbin

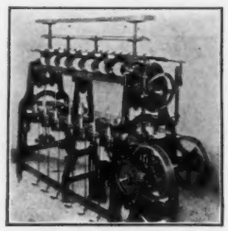
The 4 F Winder

protection, and  the doubler-spinner,

The 5 B Spinner

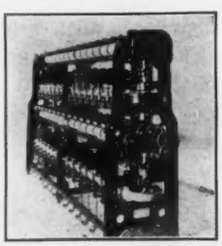
a type of perfection. For accuracy our

The 10 K Reel

reel has risen to fame.  Then the single

The B H Rayon Twister

deck twister. And now may we name our newest

creations:  The 1 C Rayon Twister

and the 1 K Rayon Reel

THE ATWOOD MACHINE COMPANY

Stonington, Conn. 267 Fifth Ave., New York

Representatives: W. A. Kennedy, 1102 Johnston Building, Charlotte, N. C.

E. G. Paules, 433 So. Spring St., Los Angeles, Calif.

ATWOOD MACHINERY SILK & RAYON

again and the bath brought to a boil, and kept boiling slowly for 15 or 20 minutes before adding Glauber's salt, as I explained in a previous installment.

A look at the bath will show that no exhaustion of dyestuff takes place, or very little if any. If the proper selections have been made the density of color in the bath should not diminish until some time after the salt has been added, in which case the dyer may be assured that his dyeing is proceeding as it should—slowly, but evenly, with a good chance for the dyes to do their work even in the tightest and inner recesses.

Function of Chemicals in Dyeing.

As has been mentioned, Turkey red or sulphonated castor oil is added to prevent absorption of the dyestuff too rapidly by the fibers, but it also serves another purpose. When washing silk goods after the boiling off, it is almost impossible to wash out completely all of the soap used. Any remnant of soap or oils that may remain in the hosiery, when in the dyeing bath while it is boiling, will break up in minute pellets and will be seen floating in the bath; if nothing is done to keep them in solution, they will eventually be found sticking to some of the hosiery. When the hosiery is boarded they are smeared into the goods, to be finally picked out by the inspectors and set aside to swell the number of redyes for imperfect work. A good grade of Turkey red oil has the property of dissolving that soap, provided it is not excessive, and keep it in solution until the conclusion of the dyeing, to be washed away.

Another good point Turkey red oil possesses is in leveling the shade. In boiling the bath with direct dyes, the color on the cotton is reduced somewhat; with an extra addition of one-half to one per cent of the oil the reduction is increased still more, and if the lot is seen to be shaded or uneven on the tops, heels and toes, that property is taken advantage of. A thorough boiling is enough to remedy it considerably, helping to produce a perfect job.

Direct colors work on the cotton much better if the bath is kept alkaline. However, when dyeing goods containing silk, in order to have this fiber also take up some of the dye, it is advisable that the bath be kept neutral. But, sometimes direct colors enter the combination which will impart to the silk more color than is desirable. The dyer has learned already, by his trials in the laboratory, which of his dyes have that tendency, and to meet that emergency, at the beginning, one per cent of phosphate of soda is added to the bath. This will retard the absorption of that color by the silk long enough for the cotton to take up more of it and when the time arrives to add the acid to the bath to finish dyeing the silk, it will be found that the bath is nearly exhausted and the silk can be dyed to matching without trouble.

Practicing Economy in the Dyehouse.

What proclaims a dyer successful is, above all, his ability to match his colors correctly at all times. That is expected of him as an essential quality. The trade demands it today more than ever before, and the dyer is prepared for it, but he also must do his dyeing with minimum of cost. To keep the cost of dyeing down he must produce work, first of all, free of blemishes. Uneven dyeing, spotted goods, torn or tangled work must not be a feature of his daily routine, or he would soon find himself out of a job. He must see that his working apparatus is at all times in the proper condition. To run a machine that is partly disabled is taking a chance, and may mean the ruination of a lot of valuable goods. Excuses for bad work will not put him in the good graces of his employer for bad work should be prevented and avoided, also there are things that he must demand in order, at all times, to be ready to produce work of acceptable quality.

WITH this, the twentieth article in the series, Mr. White's discussion of "The A B C of Dyeing" will be suspended during the Summer. Within a few months, however, he will be back with us, and will renew his contributions with a discussion of the dyeing of rayon for knit goods, which we know will interest his readers who have been following his series to date. In the meantime, there are several good features in store for the dyer and finisher.—The Editor.

A good supply of soft clean water, and at all times plenty of available dry steam, will be necessary. Good work cannot possibly be had with muddy or hard water. No mill is so small that it cannot afford a filter for the dyehouse, and if the steam is allowed to reach the dye tubs watery and weak, no matter what the ability of the dyer, his dyeing will be impaired as a consequence. His baths become weaker in boiling, the union is hard to control, formulas get out of order, and if bad work results thereby the dyer is helpless. It takes longer to dye a lot under such conditions with loss of time, labor, dyestuffs, and chemicals, to say nothing of the dyers' loss of equanimity.

The helpers should be trained to keep constant watch on the work, not to rush things at any time. The saving of a few minutes by an irresponsible worker may mean the loss of several hours to correct the result of his wilful or otherwise negligence, and above all if any mishaps occur he should learn to go and report same to the man in charge at once, and not try to repair his mistake himself for fear of a scolding.

Chemicals and dyestuffs, should be made to yield the maximum of their property. Soap and oils should be selected with care, and when the dyer has found what is best for his work he should stick to it. High-powered salesmen sometimes come along offering stuff they proclaim to be the best and only things to use, but the dyer should learn to know how to discriminate, and if anything can be changed to improve its work he should learn to test for himself, and decide what is best. By that is not meant that all products, soaps, chemicals, dyestuffs, and sundries once selected should never be changed; no progress is made that way, but a trained dyer must be able to judge when a product he is using is all that can be desired, or if there is still room for improvement and no matter how good what he is using may be, something may be found or devised which will be better. But do not be too credu-

(*Continued on page* 853.)

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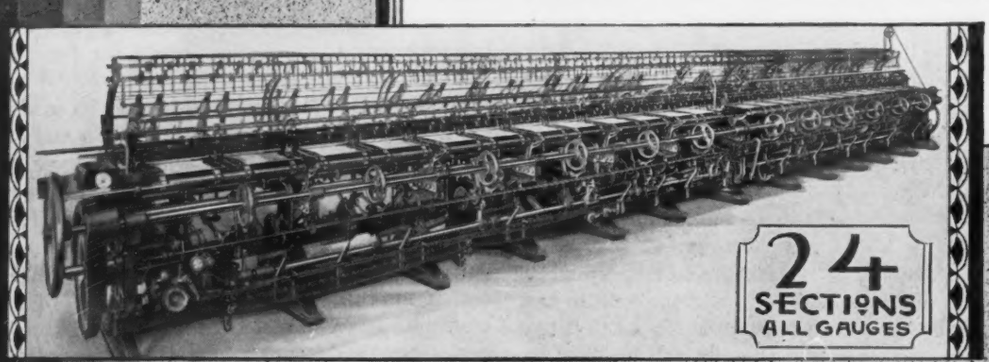

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Plaiting on the Model K.

EDITOR COTTON:

This is in reply to a question you published recently from a man who said he is having plaiting trouble, making a pointed heel stocking on a 260-needle, 3½-inch Model K machine. He uses eight thread pure Japan silk for the body yarn, and 120s mercerized for plaiting, and has difficulty on going inside of the pointed heel. He said he can get good plaiting by putting enormous tension on the body yarn, but this wears out the needles and sinkers. His plaiting thread carries no tension, he said. The pointed heel finger is closer to the silk finger than is the sole finger; he says he has no trouble in double sole plaiting, because this finger is the first finger to the left of the throat plate, and the pointed heel is second from the left; the difference being at the division of the yarn at the knitting point.

In answer, I will say that he is not the only one who is having this trouble. But if he is running eight thread silk on a 260-needle, 3½-inch K machine, he should be able to overcome it. He said he is running eight thread silk and 120s mercerized. I never heard of 120s being used for the double sole. If it is 120s/1, I think it is a little bit tight, and if it is 120s/2 it surely is too heavy.

As to the tension on the silk yarn, it requires much more tension than any other yarn, as there is about 25 per cent boil-out in silk. The hose must be knit just as light as possible without injury to the fabric. This of course makes it cut the finger, throat plate and sinkers very badly, but if the right tension is used, it will be found that the sinkers should be changed about every eight to twelve months. One prominent mill man who is running 300-needle, 3½-inch K machines recently said that if he got six months' run out of sinkers he thought he was doing well; he, of course, is running day and night shift.

I would suggest that the man having this trouble try a 90s/1 yarn for the double sole, without any tension on it, and with the proper tension on the silk. If he doesn't get results then, he might try disconnecting the No. 2 finger and using the No. 1 finger for the pointed heel and double sole. This can be done by any good fixer.

Another suggestion is to have the silk tension just as close to the yarn director (No. 7018) as he can get it.

G. R. (TENN.)

We invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All accepted contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

Oiling Knitting Machines.

EDITOR COTTON:

Referring to an article by "CONTRIBUTOR NO. 1010" in regard to oiling his 240 knitting machines and only using 109 gallons of oil in five years, will say, I, for, one, do not think he is practicing economy. I have been in the hosiery business all of my working life, and I have never yet seen or heard of a knitting machine being properly oiled with only six drops of oil. Six drops per day—240 machines—will be, figuring from the water basis, only three ounces per day.

Example,—480 drops, 1 ounce; 6 drops to a machine—240 machines—would be $6 \times 240 = 1440$; $480 \div 1440 = 3$ ounces.

In one year, or 312 days, he will use $312 \times 1440 = 9333$ drops. 64 ounces to the gallon, will be approximately 15 gallons per year. In five years this will amount to 75 gallons. At any rate, we will say he uses 109 gallons in five years. We know he did, for he says so, and it is not my purpose to say that he didn't. This contributor says that six drops of oil is enough for a machine, and I say it is not; also, if he insists on only six drops to each machine, I would dislike to fix for him. However, I don't deny the fact that there is lots of oil wasted. I know it. About half the oil holes are filled with lint, and there should be a regular inspection of this condition with a view to correcting it.

Sinker caps need oiling at least four times a day, but six drops per day for sinker caps and cam box isn't enough. I can imagine that the repair account is immense. Sinkers, for instance, will be a large item, even when oiled as in the foregoing, and not to oil them means fast wear.

The more I think about six drops of oil to one

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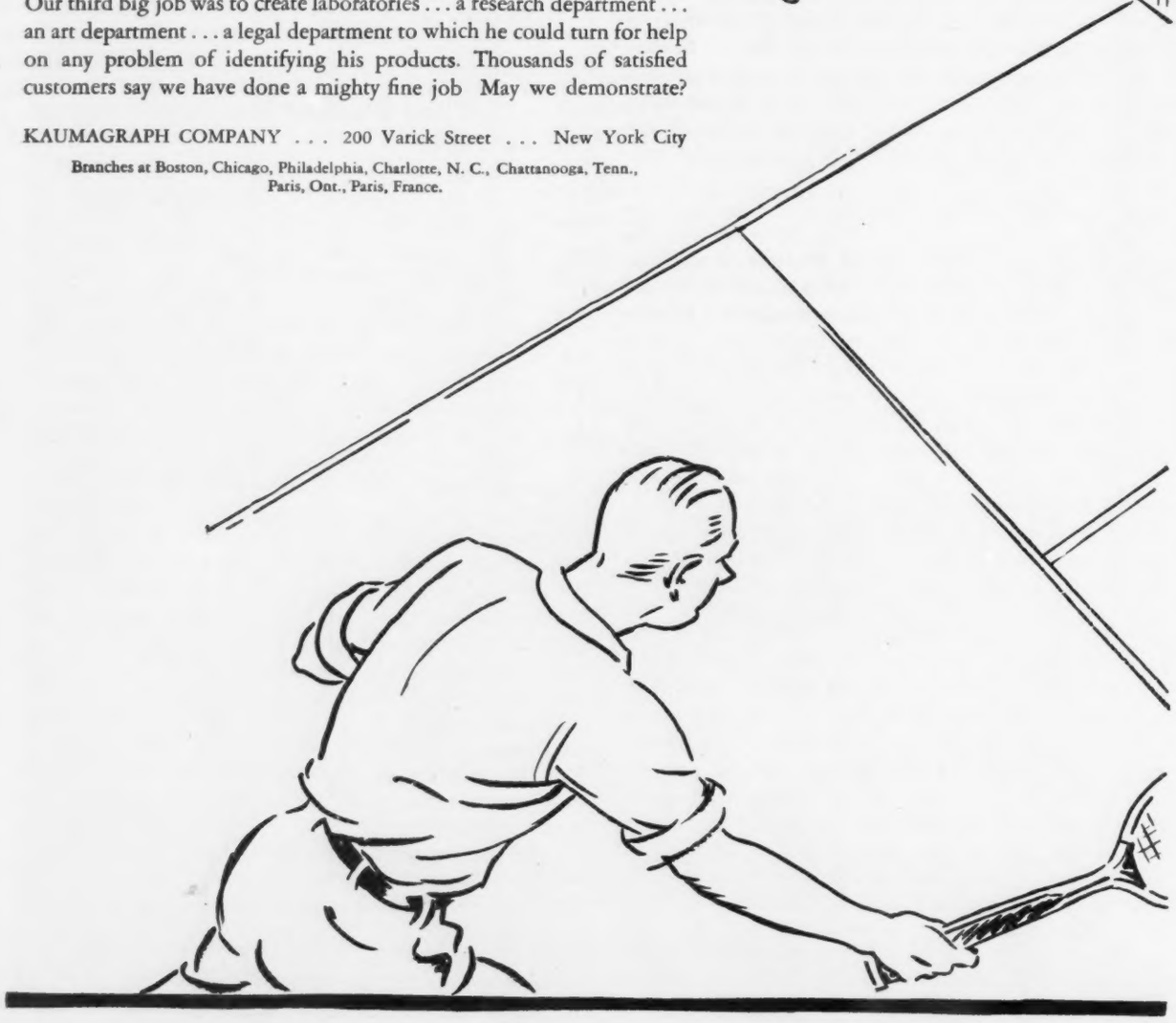

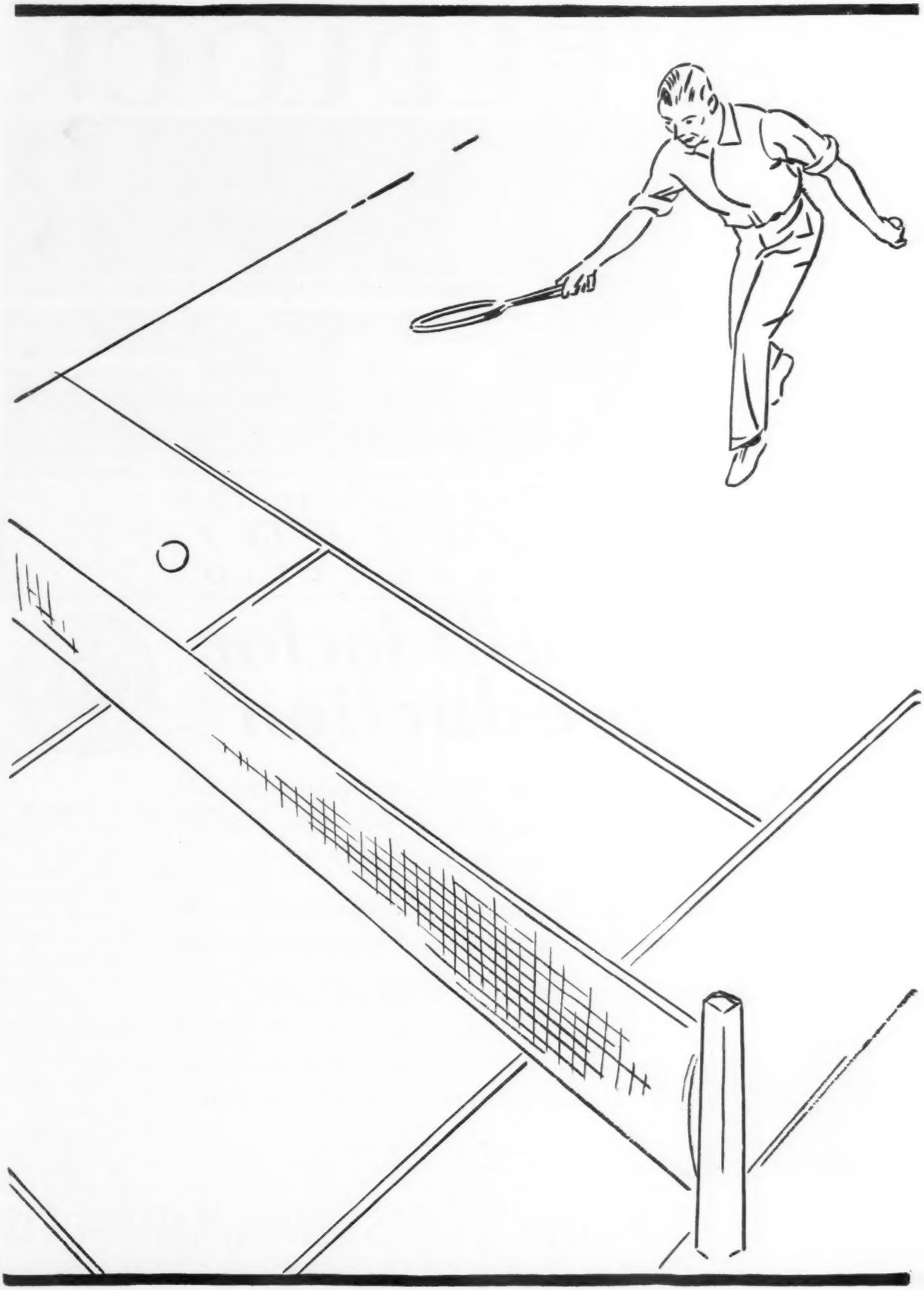

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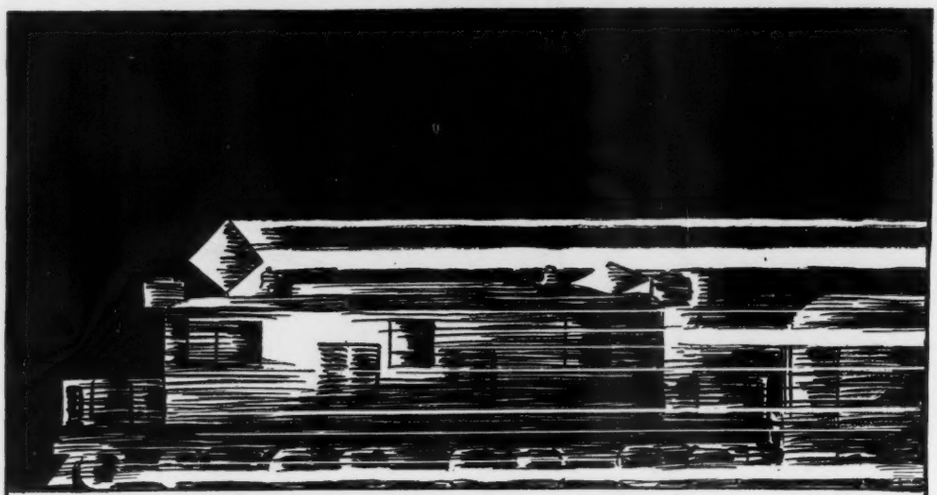

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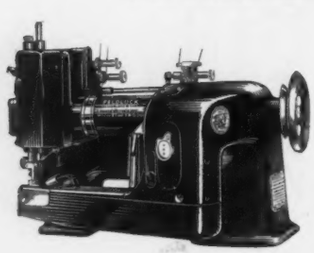

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machine, the more strongly I am convinced that if this contributor would not be so close on oil, he would save many dollars on repair parts. If stitch cams are allowed to run dry the needle butts will soon nick out places and ruin them. Cams can be ground, but they usually don't give the best results afterwards.

The way I oil my machines is, I put the oil half way the cam box, turn the machine slowly for eight or ten rounds, and then start it up. I wait for the machine to go on heel, and while the machine is still in motion I drop the oil into the sinker cap. The slots must be kept clean to get the best results. Gore menders as a rule, are a nuisance, and a good part of these are caused from sinkers. A few drops of kerosene, mixed with the regular oil, helps to rid the caps of lint that may be retarding a few sinkers, causing gore menders or streaks.

"CONTRIBUTOR NO. 1010" says he may have something to say on reducing waste and menders later; also, that his biggest job as superintendent is keeping these two items down.

I will go on record now by saying that is the biggest job we all have, and any man doing this has my sympathy. I would be glad for "CONTRIBUTOR NO. 1010" to tell us the kind of knitting machines he has; how many loopers and so on.

According to my way of thinking, he is not using enough oil. Let's study this oil question more, and if others can convince me that six drops is enough, then I will adopt the same method, or the six-drop system, but until I am convinced, I will continue to use what I think is sufficient. It has always been said that oil is cheaper than machines. Oil is the life of machines, and failure to get a sufficient amount is their destruction, hence, there are many junk yards. More oil is needed.

CONTRIBUTOR NO. 4099.

Keeping Sizes Immediately After Oiling.

EDITOR COTTON:

A few months ago there appeared in the "KNITTING KINKS" department a question from a man signing himself "F. R. (TENN.)" who reported that he was having difficulty in sizing ladies' hose on Banner machines, especially after oiling the machines. He asked for suggestions as to what might be causing this.

Without being able to know his exact conditions and practices, it is only a guess as to what will be causing this particular man's difficulty. However, my own experience and observation is that this trouble, when it comes especially immediately after the oiling has been done, is due to the fact that the oiling is carried on in an improper way. By this I mean that in many mills it is the practice of the oilers to do their work the first thing in the morning. In mills where only a day shift is operated, the machine is cold and stiff early in the morning, and when oiling is done at this time it means that the machine pulls harder and is therefore going to produce a stocking which seems to have grown up several inches, until the oil is distributed and the machine is working smoothly.

My own method of oiling machines of this character is to have the work done around 9:00 o'clock in the morning and again about 3:00 o'clock in the afternoon, which of course gets away from this trouble of a varying speed as a result of the oiling when the machine is cold.

S. B. (GA.)

Operating and Adjusting the Banner Knitting Machine.

PART FOUR

EDITOR COTTON:

We shall now take up, beginning with the care of needles, a series of subjects pertaining to the practical operation of the machines in the mill, having discussed the various adjustments, etc.

Care of Needles.

The needles, being one of the most essential parts of a knitting machine, should receive plenty of attention from both the knitter and the fixer. In quite a few mills the knitter is not allowed to replace broken or bad needles, which is an advantage in securing quality work, but often a handicap to the fixer, who must necessarily leave a very important job to replace just one needle. That comes under management, and is to be determined by the individual mill superintendent, but we all know that an idle machine produces no hosiery, so the main requisite is to replace the bad needle in the proper manner. Needles being a costly item for every mill, this work should be performed by one who knows a good needle, and when a needle is unfit to be in a cylinder.

If the yarn is fed properly and the needle line is bad, there are bound to be defects at various times. A straight needle line is the secret of reverse plaiting, whether the plaiting is done with needles or sinkers. When offset needles are used they should be just as straight in their own alignment as the line of regular needles. It is not necessary to bend them to any great extent to secure perfect pin-stripes, and with little offset, better results will be secured throughout the stocking. Care should be exercised when placing offset needles in the cylinder, to see that they are not curved, but as straight as possible. If they require excessive straightening after they are in the cylinder, puckers are bound to occur in the heel and toe when knitting a tight fabric. These puckers can be eliminated to a certain extent by bringing the sinkers in as hard and fast as possible, but we all know that a loosely knit fabric wears better than a tightly knit fabric, so why knit it tight?

Quite often needles will become mixed accidentally, and after they are in the cylinder, bent to conform to those next in line. Misplaiting follows at that point, just as it will occur if insufficient tension is placed on facing yarn to too much on the backing.

Bent butts are a source of annoyance which is often hard to locate. If the picker lip is a trifle too full, it will often catch a loose needle or one with the butt a trifle off center when next to the needle being raised and raise it high enough to strike the center cam which bends or jars it. The lowering pickers may not give the needles a full throw to the lower line, causing

these butts to strike raising pickers and eventually weaken. Too little tension on raising the picker allows it to bounce off these needles and often jamming into butts of raised needles. One of the most common causes of bent butts, even after the machine has been operated for some time, is too much stock on the front end of the raising picker, which causes the picker to retain the butt too long. Turn the machine by hand and notice how the butt is strained against the wall and often partly pulled out of the slot. This can be overcome by changing the position of the post, or by rounding the front of the picker so that just prior to releasing it is being held only by the lowest point of the butt. These pickers can also be bent if clamped in a vise, which is often necessary to secure the proper angle of throw.

A long finger is often neglected, and strikes the needles when making a yarn change. This will eventually cause closed hooks, and the finger should be heated, then squeezed in a vise. After it is properly adjusted it should be case-hardened and polished smoothly. The finger, however, should not be made too short, or it will have to be raised to an excessive height to keep the yarn out of the raised needles on the heel and toe. A short finger can likewise be lengthened when the yarns tangle in high needles. When the yarns lag low between the fingers and binder, a helpful remedy is to place the tension discs on 491 for these yarns. This will allow the lagging to be done between these tensions and the cones.

When the stitch cams are not properly gauged, or the side cams are too close to the stitch cams, a squeezing and straining is placed on the butts, which causes chattering of needles, resulting in drops, cutouts and puckers in the fabric. All nicks should be polished from these cams. On some gauges it is necessary to have the center guard cam spring 8070 to carry over the needles from the stitch race to the side cam. The screw hole in this spring should be slotted, if necessary, to extend the spring up against the side cam with just enough clearance for butts to pass through.

Quite often when the yarn breaks, the knitter will notice it and instead of timing the machine, will lay the threads to one side, allowing the machine to complete the remaining changes empty. This is bad practice, as the latches are bound to strike the throat plate and become bent off center. A bent latch loads the needle with yarn and often causes more serious trouble. A good knitter will strive to eliminate runoffs and also knows how to time a machine when necessary. Cylinder bands, necessary screws and small parts often found on the floor are discarded without being shown to the fixer, which later causes trouble.

All fixers agree that the closer the throat plate is to the needle line, the less trouble it will cause, but there is also a possibility of having it too close. If the needle line is not exactly straight, or runs out at one point, and the latch ring is raised, there are often a couple of needles pulled along, which will then have their hooks broken off. A missing cylinder band will cause this wobbling of needles, which is more noticeable on the heel and toe, as a needle line is always straightened on the rundown.

The needles as they come from the factory have sufficient tension, so they will fit in the slot snugly, but after being used for some time, become loose. Excessive bending to increase the tension, will crowd them to the left side, which makes a poor looking line even if an attempt is made to align them. Needles should move freely up or down, but not stiffly or allowed to fall of their own weight. When necessary to exert pressure to force tight needles up or down, there is bound to be useless wear on the machine and tight streaks will be found throughout the stocking.

When oiling the needles, instead of using a squirt can, it is a good practice to have a spray can and spray the revolving cylinder with the vapor. Doing this every morning gives good results and reduces the possibility of oil soaked stockings.

When trouble develops turning in the stocking after transferring the top, a very satisfactory method is to remove the first 8, 10 or 12 long butt needles and replace them with medium butts long enough to be raised by the instep raise cam 128 when going into heel and toe. Hold the cam block away from needles so the front stitch cam does not raise these medium butts, but rests against them and raises the first full long butt. Drop the yarn in over several short butt needles and have the first medium butt engage yarn just the same as though it were a regular long butt. The block goes in the remaining distance in the usual manner and the end of the yarn which is around the short butt needles, is tied in on their first knitting revolution. This method reduces cutouts, transferring, and decreases the number of runs from pulled out threads at the transferring point.

BANNERMAN.

[This is the fourth of a series on Banner machines. The next will appear in an early issue.—The Editor.]

Baxter Replies to Questions.

EDITOR COTTON:

I have read with much interest the many letters written to you by the readers of COTTON on my article on "Sleazy Knitting" and certainly appreciate the comments my friends in the full-fashioned industry have made in reference to this article. The praise received just makes me feel that I am doing some good for my fellow manufacturers and certainly gives me more spirit to continue with further articles.

To enlighten the readers as to why I am writing these articles, I might say that as far as I know, no one has ever written anything about the full-fashioned industry and the only way any of us has been able to secure any information has been through the school of hard knocks. Through the medium of COTTON, the full-fashioned manufacturers are now able to exchange opinions on various problems in connection with the industry, but like anything else, it must have a leader. Our good-natured Editor has therefore insisted that for a little while I act as leader with the idea in mind of having the readers take an interest in the full-fashioned section of COTTON and make it a real discussion section.

I am only an average knitting mill man with only an average education, and I want all the readers to feel that my articles are not written in the spirit of "knowing it all," but merely to bring out certain prob-

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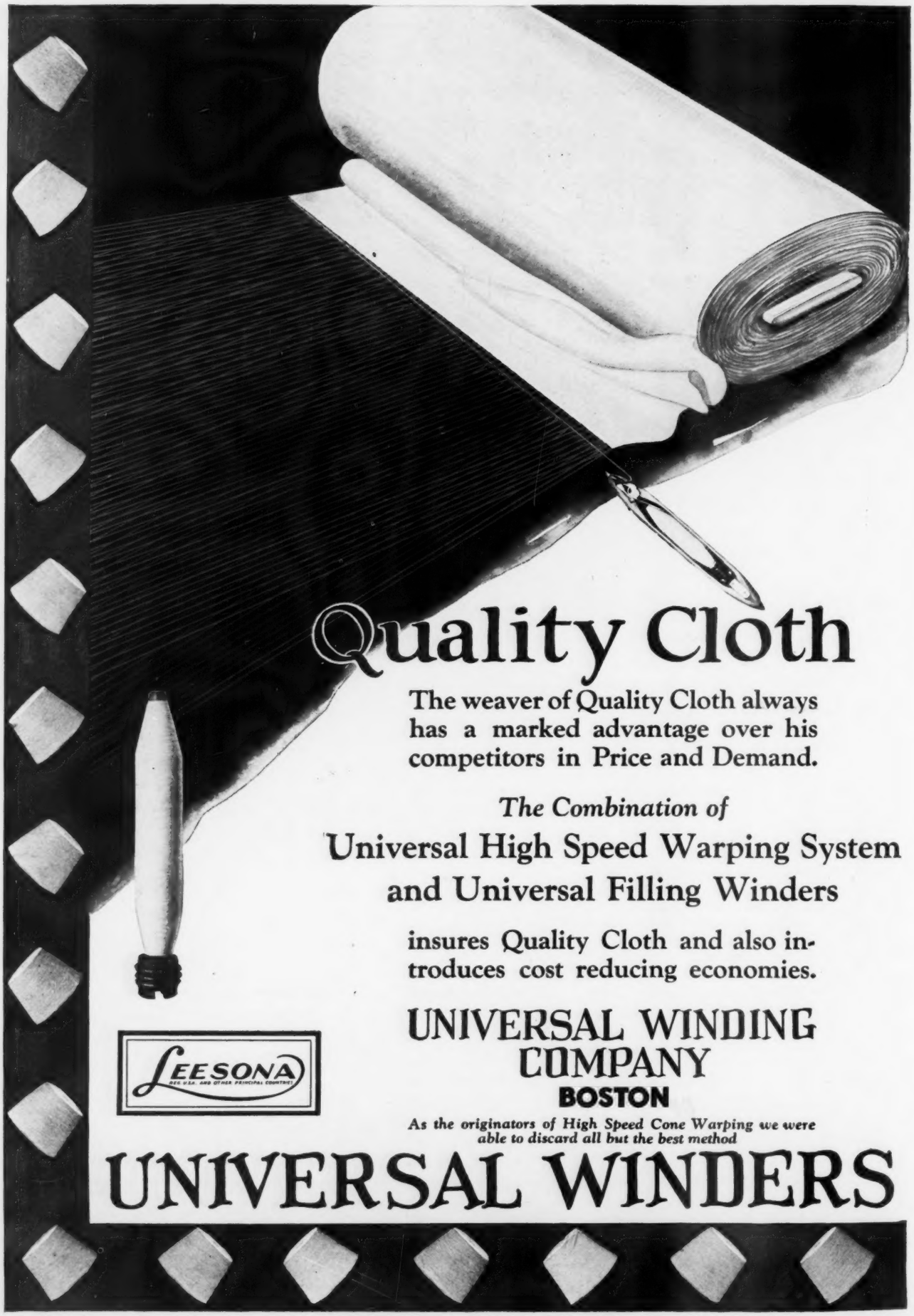

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lems that face us all in the industry. With the idea in mind of possibly obtaining a better way of doing things, which will benefit us all in our efforts to improve the quality of full-fashioned hosiery.

So I wish at this time to ask the readers to please not consider my articles as being right and proper at all times, but read each one carefully and whenever a point arises that one believes he has a better way or method to please write the Editor about it, so that I, as well as others, can receive the benefit of a better method.

In reference to the various comments made on "Sleazy Knitting," I want to particularly ask the readers to note the comments made by "CONTRIBUTOR NO. 4113." I believe that he explains fully the dyeing process in connection with sleaziness and this should be of interest to all of us. As I stated in my article, I do not know anything about dyeing and merely brought out a certain trouble I had with sleaziness caused through dyeing and how the matter had been overcome. One reader writes that he does not agree with my views on dyeing, but the chances are that I am getting results that are satisfactory to myself and the trade. This is just what I am getting, but I still maintain that sleaziness can be caused in the dyeing operation and whenever a manufacturer has sleazy hosiery, I can merely suggest that tests be made to see if it might be caused by faulty dyeing.

"CONTRIBUTOR NO. 4123" comments on the statement I made about having the oils and winding solutions free from alkali. He states that oils and solutions should never be acid and in this I fully agree with him. I might state that I am very familiar with the throwing process of silk and I have found that an acid condition of silk is about the worst thing that can happen and will cause all kinds of trouble. However, silk in a strong alkali condition will also give one considerable trouble, because a strong alkali condition will soften the gum and this means that the silk will flake and stick to the needles and the result is that many times the silk cannot be used at all. I know that it is difficult to secure a strictly neutral product and while it is better to be on the alkali side than on the acid side, try to get away from either.

Another contributor brings up the question of how to prevent the silk from drying out on a knitting machine with the temperature around 80 degrees. I do not see how this can happen other than too much silk is wound on a cone so that it takes too long a time for the silk to be used up or that the silk is not placed in air-tight humidors. To prevent this one should see that only enough silk is wound on a cone to be worked up in one day. Humidors should always have water in the bottom of the boxes or jars where the silk is placed, otherwise there is the possibility of the silk drying out in a room where the temperature is around 80 degrees. In fact, 80 degrees is too high a temperature in a knitting room and I am sure that he would obtain better results if the temperature was maintained between 75 and 77 degrees.

In this connection I might say that when a knitting machine is idle for a minute or more with knitted fabric on the machines, always see that the needles are moistened with water before starting the machine again. When the machine is idle the silk exposed to the air from the humidifier to the carrier tube dries out rapidly, and by moistening the needles, it will prevent an unsightly looking dry line in the fabric.

I trust that I have answered the questions asked by the various contributors to their entire satisfaction, and assure all the readers that I am always ready to answer all the questions sent to me to the best of my knowledge.

C. H. BAXTER.

Drop Stitches on Underwear Machines.

EDITOR COTTON:

You recently published an inquiry from "CONTRIBUTOR NO. 4098," who said he is having difficulty with drop stitches and holes, plaiting 200-denier rayon in three feeds on 40s cotton, using a 12-cut Wildman still head 12 end machine making 2 x 2 ribbed underwear. I offer the following reply:

As a means of more clearly explaining the actual existing condition, a thorough analysis of stitch formation should be reviewed; but for lack of space, consider the stitch formation on a 12-cut rib machine employing every dial and cylinder needle. There is a certain definite fixed relation between the timing of the dial needle operating cams and the cylinder needle operating cams which permits the cylinder needles to draw or measure the exact amount of yarn required for each loop formation. But inasmuch as it is necessary to supply part of this amount of yarn to form the dial loop, the cylinder needle renders the yarn over the dial needle, which in turn robs just sufficient yarn from the cylinder needle loop to allow the old dial loops to pass over the head of the dial needle. The cylinder camming is so designed that its needle is allowed to rise, as the dial needle is robbing the yarn to form its stitch, to alleviate any severe strain on the yarn as this action is occurring.

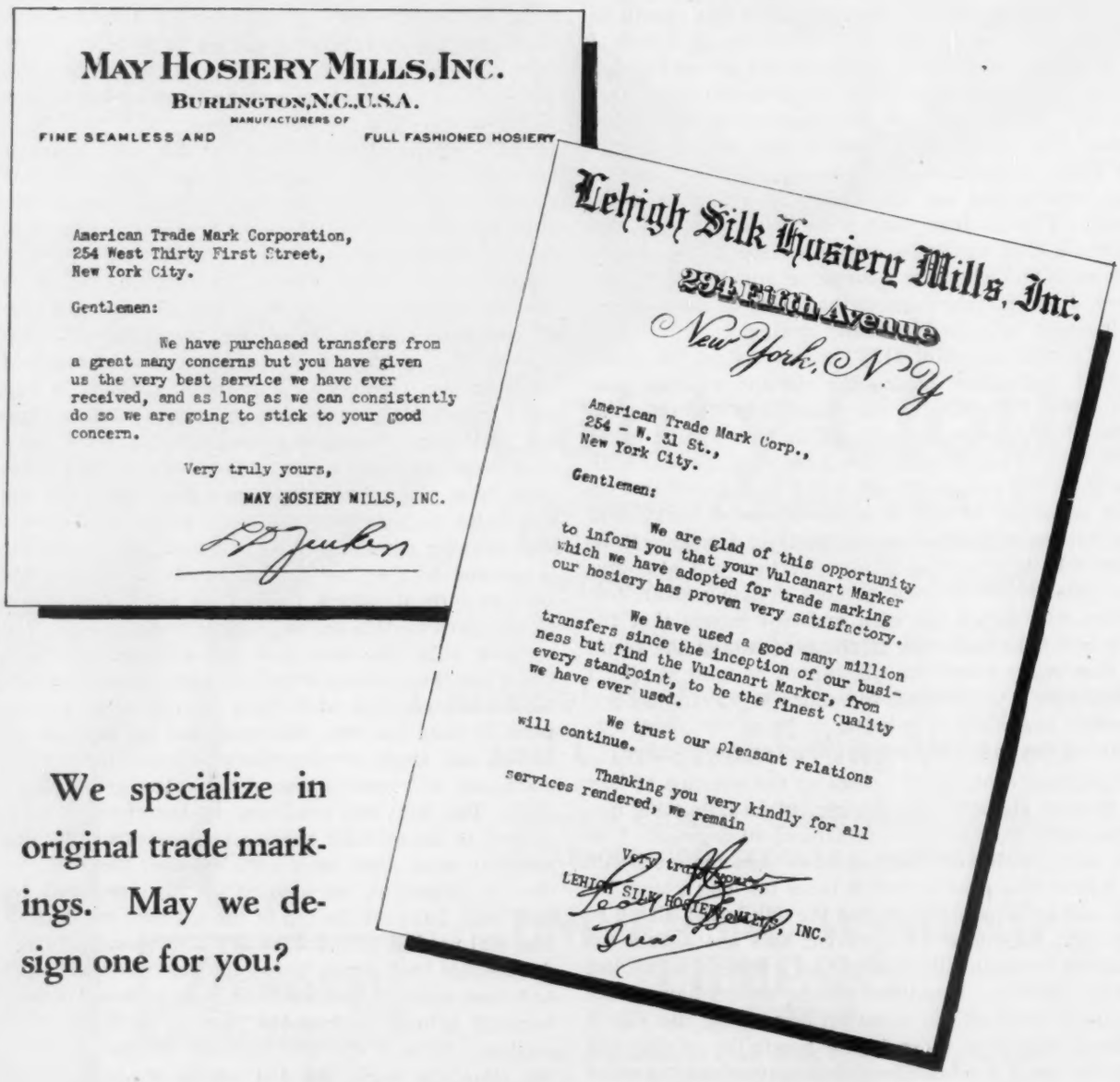
Now with the same dial and cylinder action as timed for the previous situation, suppose two cylinder needles are removed while their corresponding needles remain; then the two following dial needles are removed and their corresponding cylinder needles remain, and so repeated around the entire cylinder and dial. The knitting condition is therefore entirely altered as the cylinder needles (no corresponding dial needles) must draw their yarn not over the dial needles to determine the amount of yarn required for each loop, but over the top of the cylinder needle wall. The dial needles do not have any corresponding cylinder needles from which to rob the yarn for their loops and must necessarily draw their yarn or measure their loops by actually pulling the yarn as do the cylinder needles. With a dial and cylinder relation adjusted for plain rib work, the dial needle draws its stitch about six needles after the cylinder needle is at its lowest stitch point. Therefore, with the time relation for two and two knitting, the dial needles must render the yarn needed through two dial needles, two cylinder needles and the first dial needle of its own group. A condition which is practically impossible to perform satisfactorily.

Because of the absence of the dial needles where

Quality + Service =

Vulcanart

THE MODERN MARKING METHOD



MAY HOSIERY MILLS, INC.
BURLINGTON, N.C., U.S.A.
MANUFACTURERS OF
FINE SEAMLESS AND FULL FASHIONED HOSIERY

American Trade Mark Corporation,
254 West Thirty First Street,
New York City.

Gentlemen:

We have purchased transfers from a great many concerns but you have given us the very best service we have ever received, and as long as we can consistently do so we are going to stick to your good concern.

Very truly yours,
MAY HOSIERY MILLS, INC.

Lehigh Silk Hosiery Mills, Inc.
294 Fifth Avenue
New York, N.Y.

American Trade Mark Corp.,
254 - W. 31 St.,
New York City.

Gentlemen:

We are glad of this opportunity to inform you that your Vulcanart Marker which we have adopted for trade marking our hosiery has proven very satisfactory.

We have used a good many million transfers since the inception of our business but find the Vulcanart Marker, from every standpoint, to be the finest quality we have ever used.

We trust our pleasant relations will continue.

Thanking you very kindly for all services rendered, we remain

Very truly yours,
LEHIGH SILK HOSIERY MILLS, INC.

We specialize in original trade markings. May we design one for you?

AMERICAN TRADE MARK CORPORATION

254-256 West 31st Street,
NEW YORK, N. Y.

the cylinder needles measure their stitch, it is necessary to depress the cylinder stitch cam considerably more than normal to eliminate cuts which are caused by the dial needle endeavoring to obtain yarn for its loop through five or six loops where there is no yarn to steal, and the loops are so interlaced that the turns of the loops themselves bind the yarn which is endeavoring to slide to the dial needles' assistance. The cylinder stitch cam adjustment, which permits the cylinder loops to be sufficiently loose for the dial needles to rob the yarn for their stitches, gives too much yarn for the cylinder needle hooks to hold securely when the cylinder needles rise at the point where the dial needles would normally (in regular one-by-one knitting) begin to rob the cylinder needle loops for their (dial needles) yarn.

To correct this very bad timing condition, knitting machine manufacturers have designed cams especially for two and two fabric, which permits a timing of the cylinder needles with the dial needles so that two dial needles measure their stitch and shed their loops immediately before their two following cylinder needles. This camming allows the least rendering of yarn through other needle hooks and formed loops possible.

Your contributor makes no comment as to the quality of plaiting received, but he must not be discouraged if it is not satisfactory even with the aforementioned special camming. As the yarn is subjected to so many angles, it is impossible to insure a fixed relation between the body and the plaiting yarn even though aided by all the tension and feeding arrangements that give satisfactory results for regular knitting.

CONTRIBUTOR NO. 4114.

Maintaining Enthusiasm Among the Help.

EDITOR COTTON:

The subject of maintaining a spirit of morale and enthusiasm among the workers in a knitting mill, and other industrial establishments, is one that has apparently been considerably overworked by various methods or contests, campaigns, etc. I do believe, however, that there are different means by which the mills can keep their operatives on their toes and pepped up with the desire to produce quality along with quantity production. Every man has his own ideas as to how to do this in his particular plant, and all of such ideas are different.

At our plant here, we have the girl knitters do their own topping as well. I realize that a lot of men will disagree with this practice, preferring to have separate operatives to do the topping—but that is another story that we may discuss at another time.

On the wall of our knitting room we have a poster upon which we place every day the comparative standing of each of our knitters on the basis of a percentage of the quality of the work which they produce, and I have found that it is a mighty good thing, because there is a natural spirit of friendly rivalry and human interest on the part of the girls to try to beat their neighbor and have their names occupy a higher place on this poster. It makes them a whole lot more careful. Minnie Jones will take a whole lot more pains in doing her topping and transferring if she knows that one dropped stitch in the dozen hose will bring her quality percentage down considerably and thus cause her name to appear nearer the bottom of the list than would be the case if she had produced perfect work.

We are always on the lookout for any ideas of this kind, and if any of your other readers have found something of this nature that aids them I think they should tell the rest of us about it through the medium of the "KNITTING KINKS" department.

CONTRIBUTOR NO. 4069.

Preparing the Goods for Dyeing.

(*Continued from page* 841.)

lous, or trouble may be lurking around the corner.

Sometime ago a smooth salesman persuaded the manager of a mill to make a change in some scouring agents they were using. It was not a cheaper product that was offered in place, but one that was represented to cure a number of ills and the product was pressed so hard, and the benefits so emphasized, that the manager was convinced and ordered a supply to last some little time. The dyer was not consulted, but was given orders to change and use this new product. The dyer obeyed orders. He found the new scourer indifferent, but decided that if the boss wanted him to use the new stuff it was okeh with him, provided it did not give any trouble.

He started using it on Monday, and everything seemed to be going fine until Saturday; then something happened. The goods that were prepared for the following Monday were scoured as usual, and left over the week-end. When dyed those goods were found to be all uneven, and nothing that the dyer could do would improve that bad work. They had to be scoured again, and re-dyed. That scouring preparation contained a powerful detergent which, when allowed to be dried partially on the goods, even though they were thoroughly rinsed, acted as a resist and produced that uneven work, so hard to remedy. That caused a lot of unpleasantness, and trouble—and proved to be an expensive experiment, but it was a good lesson and education is expensive.

Torrington Builds Unique Needle Vault.

The Torrington Company, Torrington, Conn., manufacturers of knitting needles, have designed and built an interesting type of vault, in a detached building, where finishd needles will be safe-guarded from hazards. The object was two-fold, to insure customers of an uninterrupted supply of needles, and to protect the company's production operations. The vault is of extra heavy reinforced monolithic concrete construction, with windows and skylights eliminated. Illumination is by electricity, with the wires imbedded in concrete to rmove sources of danger from this direction. A single door gives entrance to the vault by means of a concrete passageway, with a door at either end so arranged that only one set of doors can be opened at a time. A ventilating system circulates conditioned air at a constant temperature and relative humidity. The vault is heavily insulated with cork. The building is 32x62 feet, 16 feet high, and provides, in special steel cabinets, storage space for approximately 140,000,000 needles. The company anticipates that the danger of fire or sprinkler damage is entirely removed, and that the uniform temperature will eliminate the tendency of the needles to sweat and rust.

The President Asks About Rotary Hosiery Dyeing Machines

(Scene—Office of manufacturing concern about to add to its line a finer quality of hosiery)

President—"We find, in dyeing chiffons, that the goods come out roughened. What can I do to my present dyeing machines so that they will turn out perfect work?"

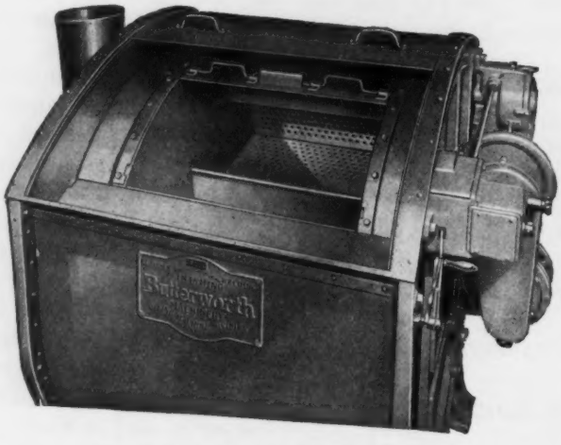
H. W. B. Engineer—"We are familiar with your present equipment, which is very satisfactory for the work you have been doing in the past. On your new line of fine hosiery we would advise the installation of new equipment.

"While you are doing this, we suggest that you look carefully into the cylinder construction of various types of hosiery dyeing machines."

President—"Have many real improvements been made in cylinders since we put in our present machines?"

H. W. B. Engineer—"Yes, our own dyeing machine has a unique cylinder construction not found in any other machine. It is possibly the greatest improvement that has been made in hosiery dyeing machines during the past few years."

President—"Just how is your cylinder different from others?"



Front view of Butterworth-K. W. Hosiery Dyeing Machine showing cylinder construction. Tub and cylinder doors open.

H. W. B. Engineer—"Butterworth-K.W. Cylinders are designed so that the goods have a minimum contact with metallic surfaces while *above* the liquor level. Contact below the liquor level is practically non-effective on account of the tendency of the goods to stay in suspension.

"This condition, as well as the tendency of the goods to float free and open when striking a liquor surface rather than a metallic one, is one of the improved features of our cylinders.

"In addition to baffles protruding inwardly from the inner wall, which have a gentle opening up effect on the goods below the liquor surface, a solid baffle, or stop plate, is mounted on the main shaft protruding outwardly into the center of each compartment.

"Solid center baffles, in conjunction with solid cylinder ends, and unperforated partitions of the division plate, carry a certain amount of liquor up and form a water cushion on the rising side of the cylinder, and prevent the goods from sliding from the rising to the lowering side of the cylinder in a mass, as is the case in some multi-pocket machines."

President—"Have your machines been standardized on by many concerns in our line?"

H. W. B. Engineer—"Yes, some of the most prominent hosiery manufacturers and dyers have standardized on our equipment. In most cases this was done after a trial machine was installed."

President—"Is that trial offer open to us?"

H. W. B. Engineer—"It certainly is. We shall be glad to send you a Butterworth-K.W. Machine any time that you would like to try it out."

This is a typical conversation. Space will not let us go into all the questions and answers, but, summing up, Butterworth-K.W. Hosiery Dyeing Machines are Monel construction throughout; all joints are flanged outwardly to eliminate any chance of roughening the goods; only cut gears are used and each machine is designed to stand a generous overload and still produce perfect work. We shall be glad to have the Butterworth-K.W. Engineer call, or a folder will be mailed promptly, describing Butterworth-K.W Hosiery Dyers, Rotary, Lift, and Paddle-Wheel Types.

KLAUDER-WELDON DYEING MACHINE DIVISION

H. W. BUTTERWORTH & SONS COMPANY

ESTABLISHED 1820

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New England Office: TURKS HEAD BUILDING, Providence, R. I.
Southern Office: JOHNSTON BUILDING, Charlotte, N. C.
In Canada: W. J. WESTAWAY CO., Hamilton, Ontario

BUTTERWORTH *Finishing* MACHINERY

A COMPLETE LINE OF FINISHING MACHINERY FOR THE TEXTILE INDUSTRY

The Knit Goods Market

PERSISTENT rumors that a slight downward revision in prices for full-fashioned silk hosiery would be announced by the Berkshire Knitting Mills on or about April 15th, had the effect of causing distributors to withhold orders or buy on an ultra conservative basis. Large retailers were similarly influenced, with the result the primary markets underwent some slowing down last month. While it was understood the new price list would apply to deliveries July 1st to December 31st, there appeared a hurry among dealers to unload Easter leftovers. The markets were waiting also for the verdict of the consuming public in relation to the case of bare leg stockings versus regulation hosiery which ordinarily represents about ninety per cent of a season's business. Children's hose to some extent felt the effect of a prospect the regular lengths might be displaced largely by anklets. Considering the problems injected into the market situation, demand for hosiery continued at a good stage, with most mills as busy as in the preceding months.

Men's underwear necessarily is waiting for buyers' second appearance in the markets. They have not bought as heavily as last year to the end of April, and may not again operate extensively until after the retail trade has been sounded out. Light weights are moving into distribution at a lively stage, and leading factors regard the underwear situation generally as developing satisfactorily.

Sweaters and bathing suits are active in spots, business in this division being held up by an indicated doubt as to whether wool and worsted yarns can long command current prices unless there be a pronounced halting in recessions in raw wool.

THE consuming public took over considerable quantities of women's silk hosiery in April. Many of the larger department stores effected quick reduction of stocks through sacrifices of around a third of the regular prices. It was noted in the trade that notwithstanding this indicated dumping of silk stockings by retailers, mill prices remained unshaken.

At first blush it may have appeared that there had been accumulating a troublesome surplus of full-fashioned silk, and that holders were getting rid of it by the shortest possible route. It develops that the dumping was by stores, not by manufacturers. Most department stores have educated the public to wait for special sales. A large part of the public did wait, this year, to do its hosiery shopping after Easter. During the weeks following, the stockings which, normally, would have been taken before that festival, were not bought until after it was over.

If a survey of the hosiery retail business were made to cover the two weeks preceding Easter and the two following, instead of applying to calendar months, it doubtless would be disclosed that this year's sales for the festival period and fashion parades were larger than for the corresponding event of 1928.

It has been revealed through inquiry among a number of representative stores that much of the sale hosiery was taken from stock, and that reductions on goods up to $3 to $4 a pair regularly ranged from 30 per cent, in the lower price brackets, to 40 per cent in the high price division. For example, hosiery representing fair value at $1.50-65 a pair was let go for an even dollar, and $3.95 very sheer went over the counter for $2.40.

With the Easter leftovers there was, necessarily, much hosiery which had been put in especially for special sales which may be viewed in the light of a primary market safety valve, in providing an outlet for over-runs without causing any commotion. These over-runs appear to represent about all the surplus output of full-fashioned that buyers picture as a plague to manufacturers.

Chiffons are coming to be regarded by numbers of leading stores as not well adapted to "sale" purposes. Some refuse to put them in, on the ground they do not sell well when prices have been reduced, while service weight hose—usually of seven or eight thread silk—moves out faster than mills are willing to supply it at a markdown. There are more cogent reasons for stores not buying chiffons for special sale exploitation. They are thus summed up by one of the better known buyers ranking as among the more successful hosiery department managers:

"The best of chiffons bought and sold in the regular way are not more than 60 per cent satisfactory; most of those made for 'sales' are only about 60 per cent unsatisfactory. Considering complaints, returns and adjustments which must be made as to chiffons under the best circumstances, they are not profitable at the reductions. It is nonsense to say they will not sell. The fact is, department managers do not want to offer them. And they are right in taking such a stand. 'Bargain' stockings are pawed over fast and furiously by shoppers. Chiffons are easily mussed under this common treatment, and then are really hard to sell. If they could be kept fresh in appearance they would be taken in preference to service weight. But this would be impossible. We offer very few, and then only from stock, at our 'sales,' and make our drive on service weight, selling ten pairs of these to one of the sheer. Manufacturers with chiffon overruns have got to sell them very low to be attractive to stores for their special sales."

Some of the shops which are proud of the rating "exclusive" have had to put chiffons in their line after clinging to the mistaken idea that their clientele would not buy them. They carried a few—the range of sizes in a half dozen popular colors—more for the advertising effect than with expectation of any volume of sales. A representative specialty shop now is selling more five-thread silk, and lighter, than of medium service weight. Its former clientele is buying them and it has attracted a class of trade that passed by the exclusive shop because it had no chiffon stockings at popular prices.

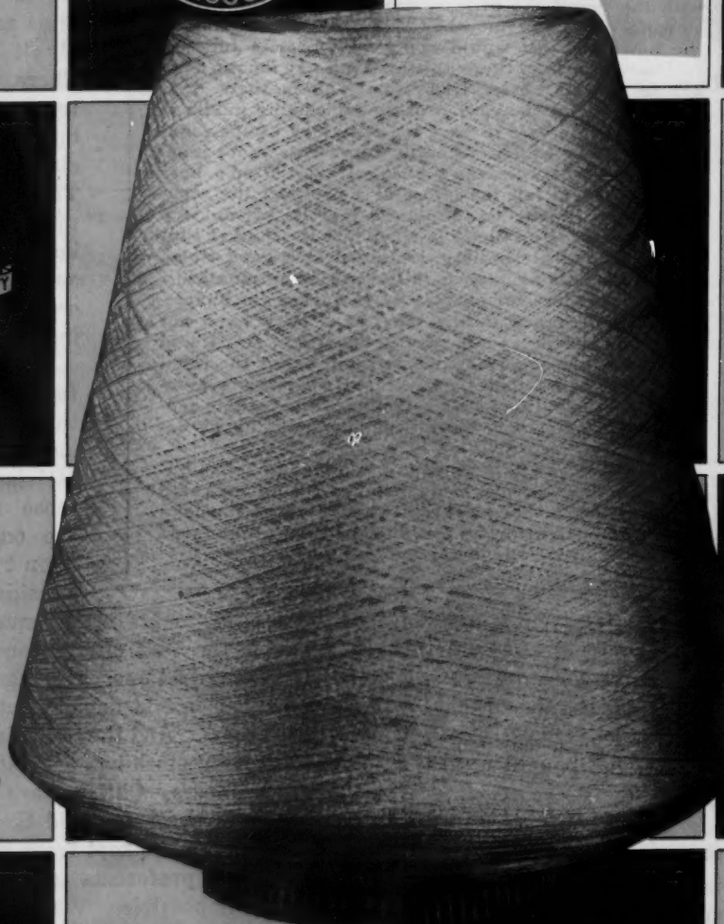
It is explained that the shopping public, realizing that chiffon hosiery is not profitable from the standpoint of service, gives large preference to the moderate priced—a somewhat elastic term. The "exclusive" shop referred to reports volume business in a 42-gauge

DIXIE MERCERIZED YARNS

SINGLE AND PLY

NATURAL DYED GASSED BLEACHED

CONES TUBES COPS SKEINS



STRENGTH AND UNIFORMITY

DIXIE MERCERIZED YARNS

DIXIE MERCERIZING CO. STRENGTH QUALITY LUSTRE CHATTANOOGA, TENN.

By safeguarding every step in production through "Controlled Manufacture," DIXIE has created and consistently maintained a standard of Quality that has won approval and praise of the foremost knitters and weavers everywhere.

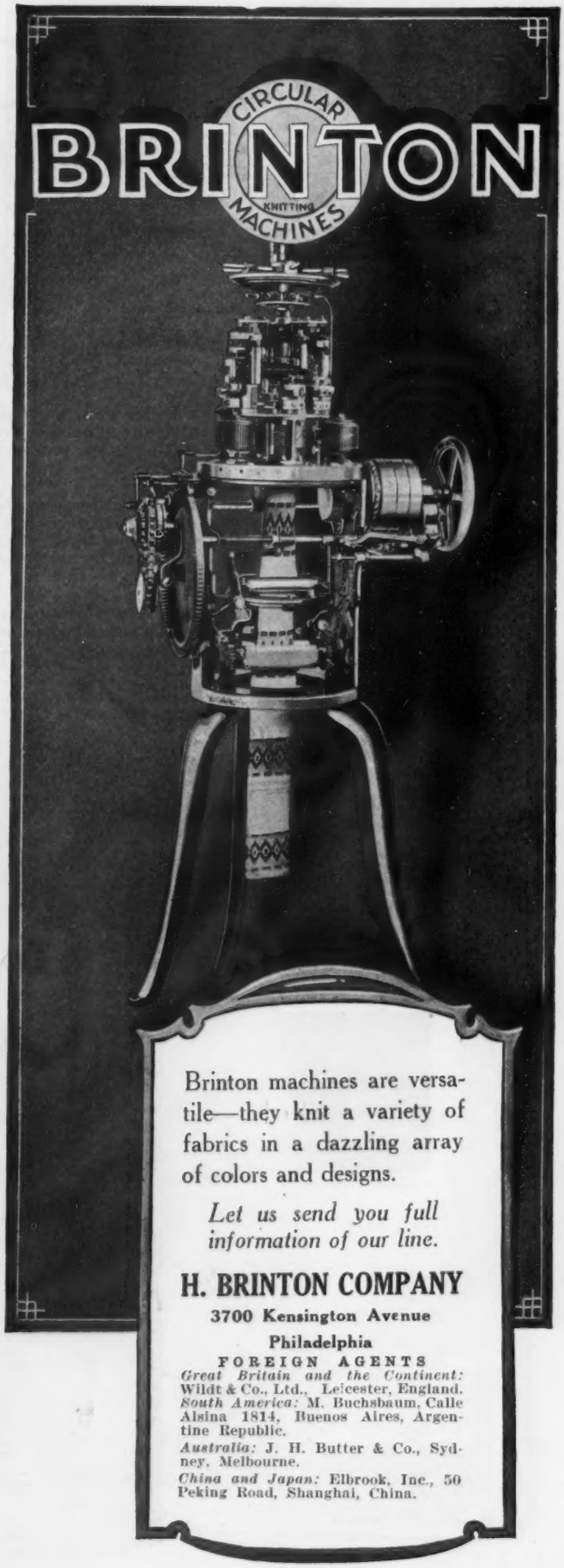
number of four-thread all over silk, with picot edge, for $1.25 a pair regularly. This stocking is, however, underpriced by the store and therefore offers no criterion for measuring volume of business by price. It is a leader, low enough to draw from the patronage of shops featuring dollar chiffons yet high enough to yield not far from a normal return. It appears that the large part of the chiffon business at legitimate prices is in the range $1.25 to $1.65, and up to $1.95 for the picoted.

Not so many weeks ago it was a dictum of large buyers that any silk stocking, to command more than $1.50 a pair, would have to be made with picot edge. Now there are picoted of 42-gauge aplenty going over the counter for $1.25. One of the busier Philadelphia mills is having a day and night run on four- and five-thread silk picoted. The president of the company is the sole salesman and therefore has a minimum selling cost. It frequently happens that in the first three days of the week he books orders for a week's production, and it is shown that the mill is sold well ahead, its distributors embracing some of the leading retail stores in New York. This establishment is one of a number presenting the brighter picture of conditions in the markets for women's hosiery. It has low operating and selling cost.

While there is every appearance of steadiness in the hosiery markets, it is to be assumed that there is a quiet unannounced revision of prices for full-fashioned silk, in conformity with which there is evidence of studious paring of cost of merchandising coupled with closer concentration. Using two moderate size mills for illustrating a point, one distributing through jobbers recently began selling direct, after some years of experience with admittedly strong selling agents. It is concentrating on a very few numbers of 39- and 45-gauge. Each of the executives is a mechanic, spending more time in the knitting room than in the office. The other, always selling to retailers, transacts all of its business direct with dealers comprising a buying group. They do not buy as a group, each of the 25 or more units placing its orders when in need of goods. But all have the advantage of a group buying price. They keep the mill going day and night, and the management has entered upon an expansion campaign, for doubling its output.

While managing a farm near Doylestown, Pa., J. L. Campbell organized the Chalfont Hosiery Mills in a village suburban to Philadelphia. Several months ago he withdrew from the organization and is building a mill in a New Jersey town in which he has interested the president of one bank and the vice president of another as the capitalists in his new organization. If he repeats his program while an executive of the Chalfont mill he will have a low operating and selling cost and will keep his Jersey mill sold ahead.

John R. Bruhy and J. L. Richie recently withdrew from the Olympia Full-Fashioned Silk Hosiery Mill Co., in Philadelphia, in which they owned 51 per cent of the capital stock. That mill now is, and usually is, sold ahead for four to six weeks. Bruhy and Richie have organized a new company and are building a factory, planning to pursue the same economic policies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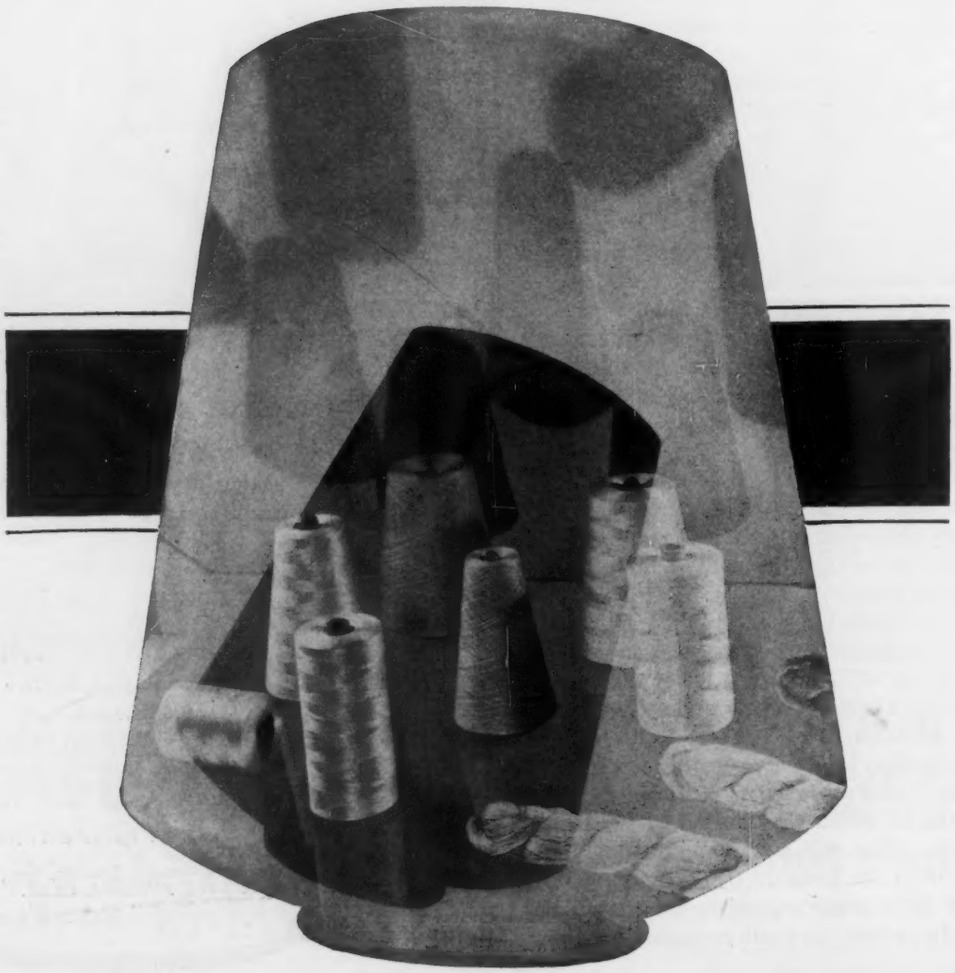


as the Olympia when under their management, and anticipating little difficulty in disposing of a 14-machine production profitably. Both are knitters. Many of the new mills in the Philadelphia area are owned and operated by former employees in local mills.

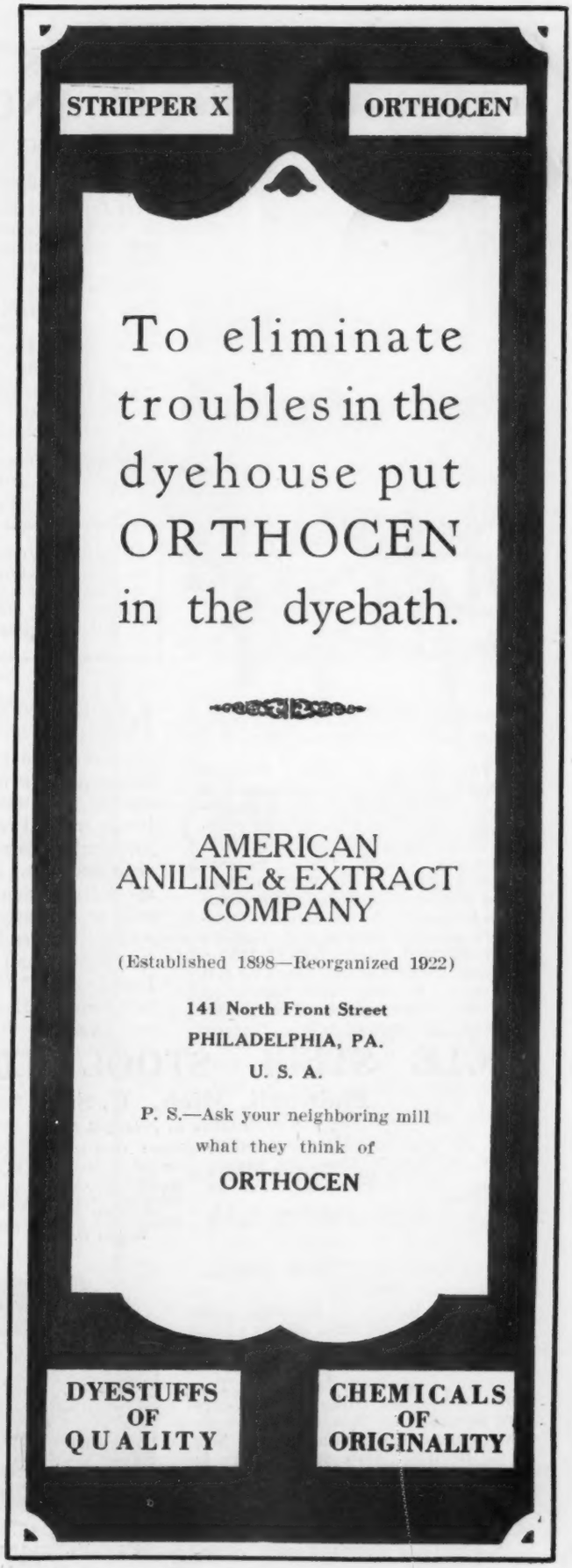
It would appear that the more profitable business is for mills in the smaller class which, forced to practice rigid economy, are able to compete successfully with large establishments with which volume is the factor. Between the two classes, operating cost has been narrowed to a point where sales may be expanded on price, with the result that consumption increases apace with production. Judging from the new equipment to be installed this year and next, as indicated by contracts which have been placed for full-fashioned machinery, manufacturers are pretty nearly 100 per cent of the opinion that danger from excessive output is no more likely now than six or seven years ago, when not a few wise ones were predicting "the bubble will soon burst."

Bare Leg Hosiery Fad
A Boon to Seamless Mills

THERE can be foreseen the possibility that the even tenor of the silk hosiery primary markets may suffer some interruption when and if the much talked of bare leg fad makes its appearance. While dealers are, apparently, feeling no alarm over prospective lessened sales of stockings, opinion seems to be gaining ground that circular knit very fine gauge in flesh tints may for a time cut into full-fashioned. If they do not, then numbers of retailers will have quite some holdings of seamless which may have to be sacrificed, for shipments have been heavy from scattered mills, some of which, while operating day and night, have had to turn orders away, being sold up for more than a month.

The Brooks Hosiery Mills, Philadelphia, was under such pressure for deliveries of skin tint hose that the plant was kept running day and night Easter Monday, the first time in its history that the operatives were not given a holiday. The Brooks has improved on some of the early models of bare leg hose, knitting in just enough heel reinforcement for protection against damage by contact with the shoe top. Stores which sold this type of stocking minus heel reinforcement report sales almost equalled by returns. It was found a day's wear left the three-thread fabric impaired for further service. Brooks claims to have overcome this weakness, and retailers have bought so liberally that it seems they share this view. H. E. Brooks, the principal in this mill organization, says he believes the well made silk stocking without back seam will prove so satisfactory during its use for simulating bare legs that he can see the return of circular knit service weight to its one time prestige. And he is not alone in leaning strong to this view.

Thus far the scare over a bare leg craze has not been reflected in any decline in sales of regulation hosiery. But that it has given the seamless a lift no one doubts. An apparently popular opinion is that stockingless limbs will prevail at the seashore and mountain resorts and in summer camps; and that in offices and business places in inland cities they will not



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TOP-PRODUCTION and your profits are dependent upon proper seating —either in office or factory.

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This over-fatigue of the body induces brain-fatigue and resultant losses by errors, slowed-up production and waste in all its forms.

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SPECIAL WORK—we are equipped to plan, design and quote you on special angle steel equipment of any nature. No obligation in asking us to submit suggestions and prices.

No. 276 L.C. "PEP" Chair.

NO. 276 L. C. "PEP" Posture Chair (above) The latest and best development in correct seating. Lightweight steel frame assures greatest strength and permanency. Seat height adjusts from 17" to 22". Form-fitting seat and back-rest, padded and genuine leather-covered. Backrest adjusts up and down and tilts to any desired angle. Steel frame comes in olive-green, black or red enamel. Leather seat furnished in red, blue, green and brown leather, 2" rubcid wheel casters.

NO. 280-C "PEP" Posture Chair (right). The ideal chair for general factory or office use. Reasonably priced and of top quality construction. Seat has backward and forward sliding adjustment to form proper relation with backrest. Hardwood seat is specially formed and finished in oak or mahogany. Form-fitting and tilting backrest is also adjustable up and down. Seat adjusts from 17" to 22". Steel frame finished in olive-green, black or red enamel.

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No. 27-17-16 Knitters' Steel Boxes

be permitted, but may be tried out evenings for the thrill, by an element that does not balk at extremes for making itself conspicuous. When it is all over for the season, it probably will be found that sales of "normal" stockings did not decline as much as one per cent.

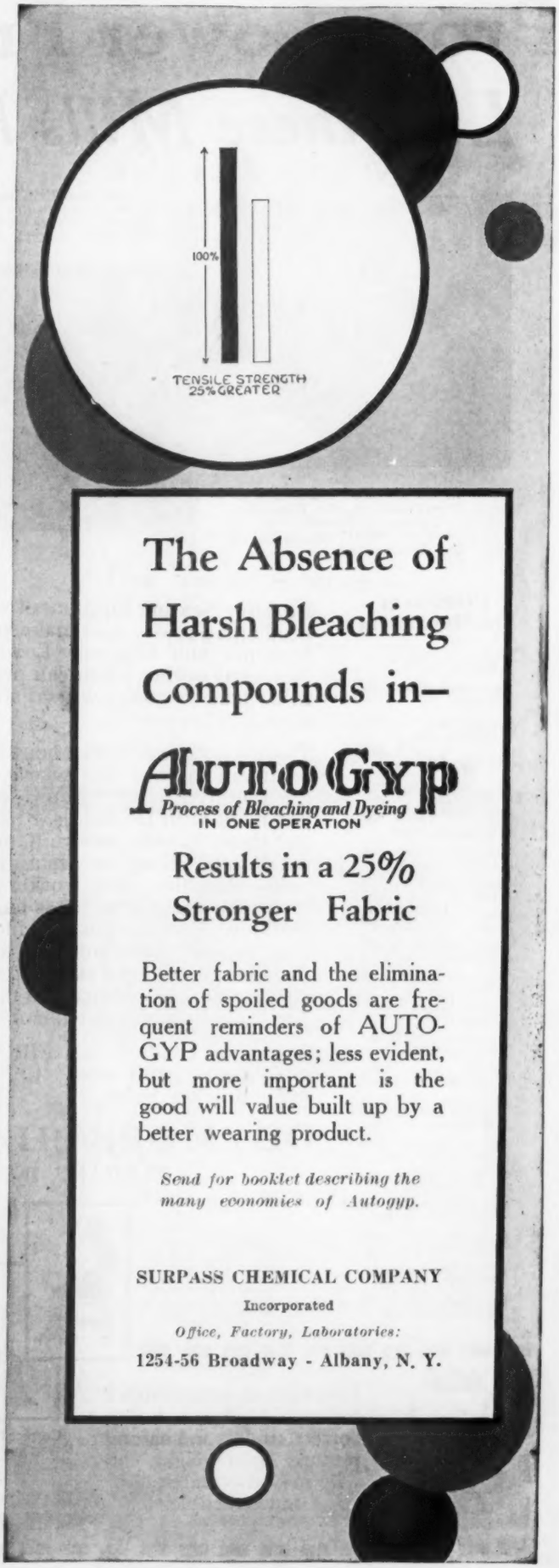
A belief that women inclined to lay a bit of emphasis on a sports makeup will adopt the anklets is predicated largely on the assumption sheer seamless hosiery simulating nude limbs is going to be worn extensively—at any rate until the cost of replenishment of the easily destroyed begins to be felt in the purse nerve. Circular knit fishnet anklets, to pass over the counter for a dollar a pair, have been big sellers. Worn over the three thread stockings, the absence of heel reinforcement for the latter might be a matter of no moment, as the anklet would provide protection against hard wear by the shoe top. One of the apparently most likely conceits in the imitation bare leg hose is a line of circular knit mesh, with seamed back, but so constructed at the instep as to resemble the unclad limb. But it will cost the wearer, or her provider, $1.75 a pair, or 50 cents more than the price for regulation knit 4-thread silk 42 gauge stockings in some really first class stores. This seems like exaltation of the seamless. Lifting it from the plebeian class to the aristocracy in hosiery is one of the anomalies of the situation working out with the promotion of an affected bare leg fad.

Children's Hose Markets Affected by Anklet Sales

JUNE, July and August are picked by market seers and fashion observers as the months when "50 per cent of the juvenile female population will be wearing anklets." They have been in strong demand from dealers, some of whom have returned them, with the explanation sales are so few as to leave a suspicion that popularity for them has been much overestimated. A well known hosiery jobber specializing in children's lines reports quite a number of stores weakening on anklets. He is, however, firm in his belief they are going to have a big three-months sale and is putting them in stock accordingly. They are regarded as likely to displace five-eighth and and three-quarter length hose to a considerably greater extent than seven-eighth and straight top half socks.

Boys' golf hose and misses' and children's lines generally are in good demand for spot delivery. The market appears to have recovered completely from the mild jolt caused by the revision in prices of rayon yarns, following which hosiery buyers stood out for a time for recessions. Prices are not at a level satisfactory to manufacturers. This can be ascribed to production in excess of market absorption. There is heard no complaint as to the volume of business placed for Spring, and reorders. Upstate Pennsylvania manufacturers who in April spent some time among jobbers and visiting buyers in New York said they experienced no difficulty in annexing a goodly number of small orders, but that their customers figured on lower than list prices.

Children's hose has been neglected, in the opinion of a Philadelphia jobber, who has demonstrated to the


100%
TENSILE STRENGTH
25% GREATER
The Absence of Harsh Bleaching Compounds in—
AUTOGYP
Process of Bleaching and Dyeing
IN ONE OPERATION
Results in a 25% Stronger Fabric
Better fabric and the elimination of spoiled goods are frequent reminders of AUTOGYP advantages; less evident, but more important is the good will value built up by a better wearing product.
Send for booklet describing the many economies of Autogyp.
SURPASS CHEMICAL COMPANY
Incorporated
Office, Factory, Laboratories:
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Prove Lower Production Costs

Like these Mills have !

Fatigue-breeding slouches that undermine the health and efficiency of seated workers are eliminated by Do/More Correct Posture.

Scene in the Do/More-equipped Topping Department of the Wiscassett Mills Company, Albemarle, N. C. These healthy, alert employees do more and better work.

Prominent Do/More Users

D. S. & W. Hosiery Co., Reading, Pa.

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Reading Maid Hosiery Co., Reading, Pa.

Schuylkill Valley Mills, Spring City, Pa.

Holeproof Hosiery Co., Milwaukee, Wisc.

Holeproof Hosiery Co., London, Canada.

General Hosiery Company, Ft. Wayne, Ind.

Atlas Underwear Company, Richmond, Ind.

Better Knit Hosiery Mill, Durham, N. Caro.

Standard Hosiery Mills, Burlington, N. Caro.

Lima Woolen Mills, Lima, Ohio.

May Hosiery Mills, Burlington, N. Caro.

McEwen Knitting Mills, Burlington, N. Caro.

Morgantown Full Fashioned Hosiery Co., Morgantown, N. Car.

National Hosiery Mills, New Orleans, La.

No Equal Hosiery Company, Atlanta, Ga.

Forest City Hosiery Co., Forest City, N. Car.

Globe Knitting Works, Grand Rapids, Mich.

Hudson Silk Hosiery Co., Charlotte, N. Car.

Real Silk Hosiery Co., Indianapolis, Ind.

Do/More Seating Equipment will lower your production costs—and make your employees healthier and happier. Lower costs mean increased profits. You can prove these facts to be true to your own satisfaction—*at our expense.*

There's no guess-work about it. Select a department in your mill where the employees are required to sit. Equip half of that department with Do/Mores, FREE! Try them, test them, in your own mill, under your own conditions. Keep an accurate check on results. Healthy, alert workers produce fast, errorless work. Fatigue is banished because Do/More Correct Posture induces (1) full lung capacity breathing; (2) refreshening of the blood; (3) free exhalation; (4) natural elimination; (5) unstrained nervous system; (6) reduction of muscular effort.

Decide to conduct this FREE comparative test in your mill now! Clip and mail the coupon below today.

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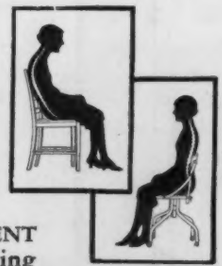
ELKHART, IND.



Incorrect Posture
The way people sit ordinarily allows spine to slump, cramping lungs, retarding circulation. Results in fatigue, dull brain, errors—hence higher costs

INDIVIDUAL ADJUSTMENT for each worker, inducing correct, tireless and natural posture. Light weight, easily moved—practically indestructible.

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Sitting in the adjustable Do/More, properly fitted to the individual employee, promotes health and comfort; hence alert, efficient work which cuts costs, increases profits

No. 25—for use in mills where average height swivel seat is required. Seat height adjustable from 15" to 19" from floor. Popular because it is comfortable, durable and reasonably priced.

No. 100W — Seat height adjustable from 15" to 20" from floor. A sturdy, indestructible seat used and endorsed by many leading mills. Angle steel base construction. Other models adjustable as high as 30" from floor.

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MAIL WITH YOUR LETTERHEAD

To DO/MORE CHAIR CO., 256 Monger Block, Elkhart, Indiana.

- [ ] Without obligation explain the Do/More Idea of Factory Seating.
- [ ] Have the "Do/More Man" near us call.
- [ ] Send complete information regarding your Free Trial plan and explain how you furnish seating equipment for a satisfactory and liberal trial. *Check service* MOST VALUABLE *to you* NOW!

satisfaction of several department stores that sales can be increased if they will pay a trifle for service which provides for frequent turnover on light inventories. Retailers within the city limits are given deliveries inside of an hour after placing orders, and within a 50-mile area it is a dealer's fault if more than eight hours elapse between wiring an order and receipt of shipment, the jobber states. One store in point may place three to five orders in a day. Quantities of any given number taken are so small that there are no leftovers of obsolete style goods—ordinarily none to be sacrificed. When the store wants to run a sale it may buy over-runs at reduced prices. It pays for service but, it is pointed out, operates on a more profitable turnover than the buyer of case lots at a price advantage, while the latter, in the event he selected a slow moving number, as the best buyers sometimes will, may be left to take a loss. The jobber admits he is forced to sell at a loss, on occasion, but he manages to cover any such deficiency in what he tacks on to case lot prices for service.

Infants' Sock Situation Is Unusually Good

DISTRIBUTORS operating in over-runs and mill ends report a famine in infants' socks for department store special sales. Ordinarily in the Spring there are underpriced lots which afford speculators fine opportunity for parceling them out at very satisfactory prices. This season there are few hangovers, most of the more important manufacturers being well engaged in completion of contracts and taking care of reorders. It seems that while jobbers last year were withholding orders, mills were making no socks for stock, and that once buying assumed normal proportions, there was slim chance for accumulations. The 1928-29 season is rated the best, in point of sales, that sock makers have had in years, and this applies with some force to juvenile lines generally. But it doubtless is true, as represented, that manufacturers operated on a narrower margin of profit.

Both Divisions of Underwear Now in Much Better Way

UNDERWEAR manufacturers are pretty well out of the woods in relation to heavy weight business and have negotiated the stiffer grade of the climb in the light weight division. All hands are feeling better over the developments in the markets in the lats few weeks. A few days of high temperatures early in April in the East, coming as an advance agent of Spring, put pep in the movement of Summer lines, while almost simultaneously blizzards in the Northwest served to remind distributors, in some sections, of last Winter's scarcity of spot delivery heavies at critical moments.

One effect of recurring periods of abnormally high temperatures was to uncover empty underwear bins. Retailers called for immediate deliveries of goods due a month later, it was stated by jobbers, and the latter were, in many cases, almost as badly off as their customers. The market was in need of a stimulus. To some jobbers it appeared that Spring business was developing so slowly that sales would fall short of the expected volume. By the middle of April the outlook

Approach Your Rayon Yarn Requirements *with an* Open Mind ----We Do!

More and more weavers and knitters are availing themselves of the unique position of The Yarns Corporation of America to render valuable, impartial and disinterested opinion—an open-minded viewpoint that may aid in selecting the right yarn for the right use!

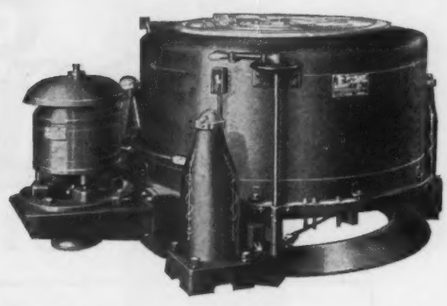
Rayon and combination yarns in skeins, tubes, cops, cones, bottle bobbins, warps, quills, spools and bobbins—shiffli, twists and flosses—direct, sun-fast, tub-fast and indanthrene dyes.

The Yarns Corporation of America

290 FOURTH AVE., NEW YORK

Plants at New York, N. Y., Brooklyn, N. Y., Allentown, Pa., Spartanburg, S. C.

Processors of Crown Brand Rayon Yarn



New

. . . and so much better!

YOU know the advantages of having in service an extractor that is accessible from every side—a machine as compact, as smooth-running, as mechanically simple as the American Open-Top Extractor. AND NOW YOU MAY ALSO HAVE YOUR O-T WITH A MONEL METAL BASKET!

Ask to have our representative call and tell you about this new and improved extractor. Write.

The American Laundry Machinery Co.

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For every dye-house need . . . a *specialized* machine.

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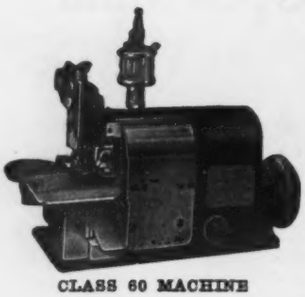
HIGH SPEED TRIMMING AND OVERSEAMING, OVEREDGING AND SHELL STITCH MACHINES FOR USE ON KNITTED AND WOVEN FABRICS OF ALL KINDS

———200 VARIETIES FOR 200 PURPOSES———



CLASS 60 MACHINE

INQUIRE ABOUT NEW MERROW MACHINES

STYLES 60-ABB and 60-D3B

For simultaneously trimming and joining ends of cotton, silk or woolen piece goods with a

FLAT BUTTED SEAM

Permits goods to pass through finishing machines, uninterrupted, for such operations as Shearing, Calendering, Mercerizing, Bleaching, Dyeing and Printing—with *remarkable saving*—both in labor and fabric.

Butted Seam, natural size, made by STYLE 60 ABB MACHINE on Cotton Goods which have been subsequently processed. The STYLE 60 D3B makes a similar though much wider seam designed for use on sleazy or loosely woven goods to insure holding.

OTHER RECENT DEVELOPMENTS—FOR THE RAYON TRADE

STYLE 60 RD —For a three-thread overedge finish, either straight or scalloped, on Rayon Bedspreads and other sleazy articles on which the ordinary edge finish will not hold.

STYLE 60 JDC —For two-thread FLAT SEAMING on Rayon Underwear.

Let Us Demonstrate the Work of These and Other Machines on Your Own Fabric.

THE MERROW MACHINE COMPANY

16 LAUREL STREET, HARTFORD, CONN.

G S N C

GOC

GOLD CIRCLE NEEDLES

NO MORE ROUGH RIVETS

Our new needle with the rivet Brazed to the cheek does away with them. The needle lasts 3 times as long.

More and Better Knitting

because they are always smooth.

If you have not seen these improved needles or tried them, ask for samples.

Patent applied for

MANUFACTURED BY

GRANITE STATE NEEDLE COMPANY

LACONIA, N.H., U.S.A.

brightened and where there had been gloom, department heads were cheered by a burst of demand which seemed to carry assurance of at least normal distribution. There is, however, much criticism of the tardiness of numbers of retailers in the matter of taking in goods.

Most jobbers have been unusually active this year in efforts to obtain firm orders and shipping instructions well in advance of consumer demand. Manufacturers of well established brands have been pushing their distributors, who either had to get orders early or risk losing their contracts with mills. Manufacturers took the initiative in intensive campaign work and kept on the heels of their selected jobbers. The results have been only partily satisfactory. It was found difficult to budge dealers in their determination to have jobbers carry stocks for them. But, according to common report, there are this year fewer laggards in this respect than in recent Springtimes.

A Middle West manufacturer of better than average grades of underwear dropped a remark the other day to the effect that it was harder to coax orders from jobbers in Philadelphia and Baltimore than in any other city. He was especially caustic in his criticism of Baltimore. One or two jobbers there, he said, had withdrawn from certain southern territory and appeared absolutely indifferent toward underwear, as if caring not whether this mill or that dropped them as distributors. With the exception of two jobbers whom the manufacturer mentioned, he thought Philadelphia this season was not of much use to the underwear trade. He didn't like the Philadelphia brand of conservatism.

An eastern manufacturer sent a representative to Philadelphia a few weeks ago to introduce among retailers a high grade twin button union suit which sells for $2. Accompanied by a jobbing house executive, the man from the mill made the rounds of a dozen retailers who have a trade that pays that much and more for underwear. Not one dealer was found willing to order a few dozens. None ever had offered it, but all passed it up on the ground "there was no demand for it," and no one other than the jobber was sufficiently interested in the line to try to create a demand. One dealer was doubtful whether he would accept a quarter dozen of the suits for his individual use, for a try-out. "Never saw so many conservative retailers in one city," said the man from the mill. The suit in question is said by the local jobber to be a strong seller in the West and sections of the South.

The East is plunging on athletic shirts and short drawers as a Summer combination. The drawers, shown in practically the entire gamut of plain fabric and a confusing variety of patterns and thus adapted to every conceivable taste and tastes yet to be cultivated, encounter the least resistance of any type of underwear, it is stated by selling organizations. The combination is probably the last item in men's underwear immune from being classed as "trick undies," a term applied to various types of union suits intended to eliminate buttons or reduce their number to a minimum, innovations of the last decade.

Enough business in women's cotton underwear is afloat to keep the remaining upstate Pennsylvania

BONE-DRY UNSHRINKABLE WELL-FINISHED

HARD MAPLE HOSIERY BOARDS

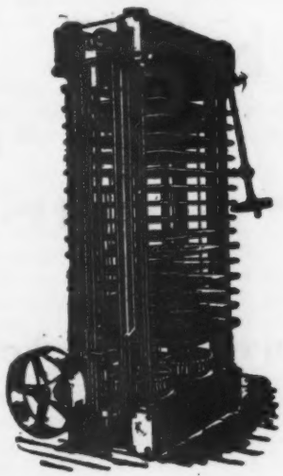
Give you that much desired finish that cannot be obtained from any other than wooden boards.

You get the length, lustre, *feel* that the goods should have.

Our special finish is highly recommended for silk and chiffon hosiery.

We serve the best mills—send a request for list and same will be forthcoming.

JOSEPH T. PEARSON & SON CO.
Manufacturers
Kensington and E. Boston Avenues
PHILADELPHIA, PENNA.



RELIANCE
Hot Plate Screw Press
FOR
Hosiery and Underwear
Write for Catalog and Prices
Reliance Machine Works
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418 FRANKLIN STREET
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123 SO. BROAD ST.
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KARL LIEBERKNECHT

Full Fashioned

HOSIERY MACHINES

Are Known for

Speed When Needed—Quality Production Always

(*The Machines Confirm It*)

Manufactured by

KARL LIEBERKNECHT, Oberlungwitz, Saxony

(In Any Desirable Gauge and Number of Sections)

Imported and sold exclusively by

LOUIS HIRSCH TEXTILE MACHINES, Inc.

47 West 34th St., New York, N. Y.

Lieberknecht Hosiery Machines have been made by KARL LIEBERKNECHT, Oberlungwitz, Saxony, continuously since 1873

mills on a going basis. But the number is gradually diminishing and those that have survived the drift to rayon are using less equipment. There are, of course, some few exceptions, represented in mills selling their production mainly to chain stores and catalog houses. Some observant factors in the primary markets predict that within the next five years consumption of cotton underwear for women will be on a level relatively with that of women's cotton stockings for street wear.

While rayon undoubtedly has the call and is fast winning new friends, this trade does not have all plain sailing. Production is going ahead of consumption by leaps and bounds, price lists are being shattered, and there is an abundance of skimped and otherwise trashy bloomers and union suits on the market that gets by to an extent that often the values of the legitimate are questioned by not well informed but somewhat liberal buyers. Most of the manufacturers of the better types of rayons report conditions seasonally quiet, while numbers of retailers this Spring have run "sales" at amazingly low prices.

Knitted Underwear Trade Quiet and Active by Turns

THE primary markets for knitted outerwear appear to have entered upon a quiet spell with the beginning of Spring. There is some activity in certain lines of sweaters, but this is not general among mills. Most manufacturers, it appears from reports of commission houses and selling agents, are in need of Fall business. As there is apparent much uncertainty over near future values of woolen and worsted yarns, shakers and the heavier types of men's sweaters are causing manufacturers most concern. The situation is best understood when conditions in the yarn markets are considered.

Worsted yarns have declined approximately five to 7½ cents a pound from the prices prevailing when manufacturers came on the market six months ago for the Spring and Fall seasons, and with wool giving no evidence of increasing value, there is necessarily some fear that current yarn prices may not hold. This would be serious enough in itself, but to make matters worse, competition for business in sweaters has been so keen that numbers of mills reduced their prices, until profits for quite a few concerns have been virtually wiped out. Being at a disadvantage with yarns at their present level, they would be even worse off were yarns to decline still further and they were left to put their higher price contract yarns into goods.

Jobbers, obviously, are influenced by the same conditions which are causing manufacturers to proceed with utmost caution. So, most of the buying is of underpriced goods, and manufacturers necessarily are not putting the same effort back of their sales campaign as would be the case were there prospect of a rising market. Uncertainty over wools and yarns is holding business in sweaters in check, and there is heard an opinion that the situation will not much change until wool prices for the new clip have been established, probably along in June or the latter part of May. Trading in bathing suits received some impetus from a few days of ideal Spring weather.

Cadet Discontinues Juvenile Members

CADET KNITTING CO., Philadelphia, for years one of the ranking factors in the manufacture of children's hosiery sold direct to retailers, has discontinued all of its juvenile numbers. Accumulations are going into distribution and it will be but a short time before the company will have disposed of its last dozen, it is stated. A person authorized to speak for the Cadet company says it gave up making children's stockings "because there no longer was any money in them." The decision to drop the line entirely was in conformity with a previous announcement of the company that it had discontinued all other seamless lines—men's and women's—determined to concentrate on women's full-fashioned, to be produced in the existing mill in Philadelphia and in the mill in course of erection in Columbia, Tenn. In discontinuing all seamless lines, the Cadet Knitting Co., has abandoned a field in which for many years it was recognized as one of the more important direct-to-retailer producers.

Among the Knitting Mills

A MILL to manufacture rayon hosiery will be erected at Warren, Ark., according to announcement, and George H. Booth, vice-president of the Pauline Hosiery Mills, Little Rock, will serve as manager.

Spivey Mills, Inc., Bridgeport, Ala., have erected a one-story, 80x115 foot building, and are producing silk hosiery. C. E. Spivey is president and E. P. Jacobs treasurer.

Alabama Hosiery Mills, Inc., Decatur, Ala., are erecting a building 100x200 feet, and will manufacture full-fashioned hosiery.

Richmond Hosiery Mills, Rossville, Ga., are in production on the full-fashioned equipment secured from Alfred Hoffman, Inc., which is of the H. S. L. type.

McDonough Hosiery Mills, McDonough, Ga., will increase their equipment by the addition of five machines, according to announcement from D. A. Hood, manager.

Simmons Mills, High Point, N. C., have been organized for the manufacture of hosiery. W. D. Simmons, Jr., is general manager. It is understood the initial installation will comprise 25 machines.

The production of the Wilkes Hosiery Mills, North Wilkesboro, N. C., will be increased 30 per cent, it is announced by P. W. Eshelman, president. A three-story addition will be erected. The production at the present is men's half-hose.

Building operations have started on the plant of the Foster Knitting Machine Co., Burlington, N. C., which will manufacture full-fashioned hosiery. The building will be 100 x 84 feet. The officers include Charles S. Foster, John Shoffner, M. A. Coble and Dr. W. D. Walker. Mr. Foster is also manager of the Liberty Hosiery Mills of Burlington.

Full-Knit Hosiery Mills, Burlington, N. C., have been organized by R. O. Sellers, W. W. Sellers, W. B. Mangum and others. The authorized capital is $300,000.

Grover D. Moore and Keith Moore are promoting a new hosiery mill for Burlington, N. C., to operate, originally, 22 machines.

Both the Adams-Millis Corporation and the Diamond Full Fashioned Hosiery Co., of High Point, N. C., are install-

FULL-FASHIONED KNITTING

can be made easier by adopting

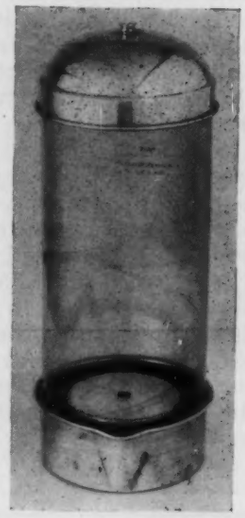
THE FLEXALIN UNBREAKABLE HUMIDOR and THE FLEX-O-ALUMINUM CONE

Our type humidor permits each cone to obtain the same amount of moisture. If your silk is continuously damp you obtain a close even knitted stocking.

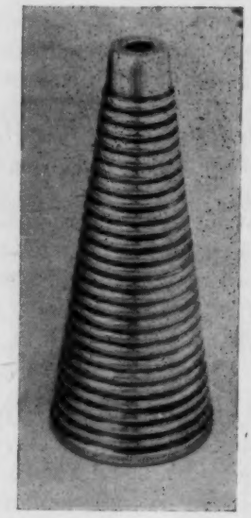
MORE FIRSTS and LESS SECONDS.

In comparing the FLEXALIN HUMIDOR with the large damp boxes we find the percentage of evaporation is much lower. This means your thread will be in better knitting condition.

THE INITIAL COST SHOULD NOT BE YOUR ONLY CONSIDERATION.



YOUR INQUIRIES WILL RECEIVE OUR IMMEDIATE ATTENTION

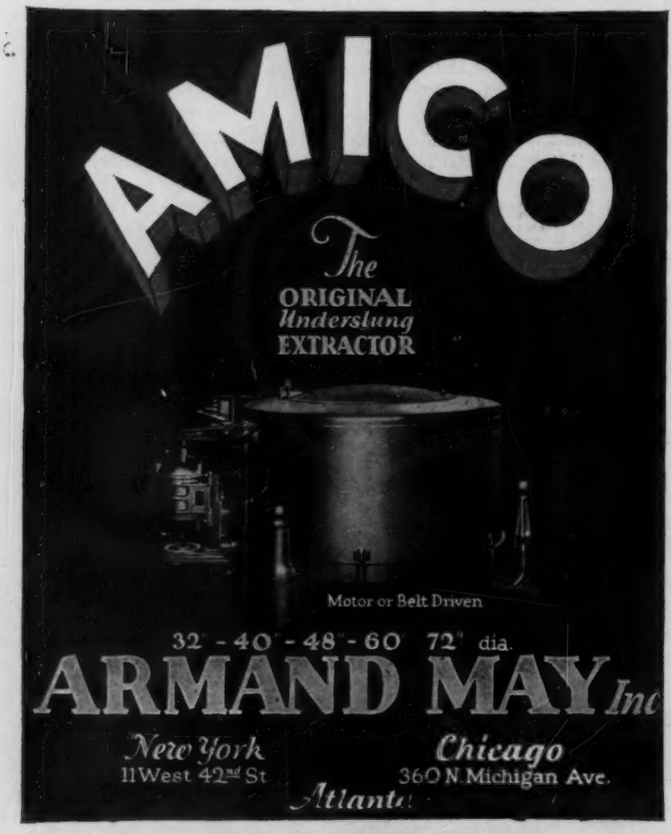


The Cone or Bobbin is extremely light and will not chip when dropped. Also moisture does not affect our cone such as is the case with the wooden type.

It is so constructed as to permit the thread to unwind evenly to the very end. It does not require re-lacquering and is made in various sizes. Therefore the FLEX-O-CONE is just what you need as it does not drink the moisture from the thread while being knitted.

Manufactured and Distributed by

BACHMANN BROS., INC., 607-609 Commerce St., Philadelphia, U. S. A.



Especially developed for the Textile Industry

AGENTS

The Makenworth Co., P. O. Box 628, Greensboro, N. C.

Laundry Mach. & Textile Co., P. O. Box 1523, Atlanta, Ga.

LOOMS — WINDERS — QUILLERS

The EASTWOOD HORIZONTAL WARPER

SWISS MOTION ATTACHMENT

5 Metre—6 or 8 yard Light or Heavy Reel

—For—

RAYON—any make of yarn
SILK—hard or Soft and
Fine Counts of COTTON

LOOMS—WINDERS—COPPERS

BENJAMIN EASTWOOD COMPANY

PATERSON, NEW JERSEY

Represented in the South by
CAROLINA SPECIALTY CO.
Charlotte, N. C.

BEC

IT'S EASY THE EASTWOOD WAY

THE Consolidated Hosiery Mills, understood to be an intending holding company, which has an option on the Alanna Knitting Co., Philadelphia, operating in Quakertown, Pa., is making overtures to manufacturers for effecting a merger to include the Alanna, the option on which will expire on June 6, unless exercised in the meantime. On the same date an option held by the Consolidated on a five acre tract at Conshohocken, Pa., will expire. What progress the Consolidated is making toward a combine is not disclosed, persons in position to talk refusing to do so.

What appears a more promising undertaking is being engineered by a Philadelphia full-fashioned organization in the larger class, selling direct to retailers under a well known brand. The management has disclosed its hand to only two other full-fashioned corporations, one of which it had hoped to interest as the leader of a proposed merger. These to whom overtures were made declined to consider the proposal except with the distinct understanding that the intended combination would operate as a non-union organization. As the originator of the project is withholding assent, it has not advanced from its starting point, and those who have rejected the plan in the form in which it was submitted feel it would be unfair to reveal the names of the parties taking the initiative. Merger is in the air and there is much quite talk but no action.

ing equipment for the production of full-fashioned hosiery.

Lake City Hosiery Mills, Marion, N. C., have been completed and placed in operation, it is announced.

Operations have started in the full-fashioned plant of the Rock Hill Hosiery Co., Rock Hill, S. C. Charles L. Okey is manager.

Cromwell Hosiery Mills, Chattanooga, Tenn., have been formed by F. G. Henley, Clyde Riggs, R. C. Anderson and others. The capital is $50,000.

Jefferson Campbell is president of a concern which plans to equip and operate a hosiery mill at Birchwood, near Chattanooga, Tenn.

T. Walter Fred has let contract for the construction of the Walter Fred Hosiery Mills, Nashville, Tenn., which will manufacture full-fashioned hosiery. It is reported the building will be two-story, 300x126 feet, and will contain 60 full-fashioned machines with dyeing and finishing equipment. Officers are T. Walter Fred, president; James E. Winn, secretary-treasurer; and Lewis H. Steward, vice-president and superintendent.

Federal Phosphorus Company.

Organization of the Swann Corporation, a holding company for what is said to be the largest group of chemical manufacturing plants in the South, has been announced by Theodore Swann, president. It is the parent company of eleven subsidiary enterprises. The largest is the Federal Phosphorus Company, with headquarters in Birmingham, and plant at Anniston, Ala., where a complete line of textile oils and chemicals is produced. This company, it is stated, is the largest manufacturer of edible phosphoric acid, which is used in a multiplicity of food products.

The company, it is explained, due to the location at Anniston, is in a position to render prompt and intimate service. The plant laboratory employs some 40 chemists and a field service is maintained through which men of wide practical experience are available. Among the products of the Federal Phosphorus Company for textile mills are: softeners, sizing materials, finishing materials, raw and sulphonated tallows, penetrants, stripping agents, dye assistants, degumming agents, weighting materials, fulling and scouring concentrates, kier assistants, detergents, lubricants for different fibers, trisodium phosphate, sulphonated, soluble, stainless, olive and wool oils. The company also produces a line of heavy and special chemicals, animal and vegetable oils and greases for the textile, tanning and paper trades.

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The Yarn Market

Philadelphia, Pa., April 9th, 1929

LAST MONTH in this report it was indicated that a definite kind of improvement in values had come about in the Philadelphia cotton yarn market. That report was written on March 15th, and for a short period following that date—the beginning of the next succeeding month as it will be reported here, there continued these same evidences of a better situation, but between the latter part of March and the present writing the situation, particularly with reference to carded numbers, reversed its form and a decline in values took place. With this easing off in rates, however, distributors and spinners seemed content to mark time or retain a position of firmness, and since the buying was being done on the lower levels, there naturally developed more or less of a deadlock between buyers and sellers which evidently is in force at the present time.

About a month ago, several of the leading mercerizers of the country formed the Durene Association, giving to their product the trade-mark "Durene" yarn, and this had an encouraging effect upon the spinners of combed yarns processed by these concerns. During the month just past their attitude has been one of especial firmness and today combed numbers are in a relatively better position than their carded neighbors.

The first week of the month as it is reported here, beginning with March 18th, saw carded yarns start out with improved demand—more numerous orders, though in small lots, and with little better prices for quality. Combed yarn men withdrew prices and set up new values and seemed content with what came. This strength had an influence on carded numbers also. The ascent of cotton rates, up as high as 21 cents, pulled yarn rates up, and when the staple slowed down during the latter part of the week this affected yarn values adversely, and toward Saturday there was evidence of an approaching deadlock.

This deadlock materialized the next week, which saw, as the month of March and the first quarter of 1929 closed, reductions in some of the published values to a point where they compared with the levels of the first two months of the year, following the improvement in March. Good quality products, especially in weaving numbers, again came into prominence, comparatively speaking, and there was a tendency evident among mills to go upward to meet the demands of quality rather than retreat toward offered lower prices. As a whole, the spinning element seemed in a much better position than was the case last April.

The next week, being the first in April, saw a gradual tightening of the deadlock, with values as published on carded numbers continuing to recede. Combed numbers, as was the case throughout the month, continued to occupy a more enviable position of firmness and appeal. In the carded groups, the weakest spot seemed to be in those numbers going to the knitting industries, while those for weaving purposes showed up much better and held to stronger positions. There was wider inquiry if not improved business in these numbers. As the week progressed, the influence of the deadlock increased and the close of the week found carded yarns as a whole quoted in the published lists at the lowest prices in six months.

With it all, however, distributors and spinners evidently remained firm, unattracted by bids at the lower published prices, as a rule. The next week following, in which this is written, saw further shading of carded values. Many factors anticipate the beginning of a dull Spring period; at the same time the spinning mills seem strongly situated and able to withstand the effects of an absence of bulk business right now, and the fact that the recent recessions in price have disclosed no "distress" yarns in this market or at mills is regarded as a wholesome indication.

Philadelphia prices on April 8th follow:

Single Skeins.

4s to 8s	30 @30½	10s	31 @31½
12s	31½ @32	14s	32 @32½
16s	32½ @33	20s	34½
24s	36½ @37	26s	37 @37½
30s	38 @38½		

Two-Ply Skeins.

8s	31	10s	31½
12s	32	14s	32½
16s	33	20s	35
24s	37	26s	37½
30s	38½ @39	40s	45 @46

Single Warps.

10s	31½ @32	12s	32 @32½
14s	32½ @33	16s	33 @33½
20s	35 @35½	26s	38 @38½
30s	39 @39½		

Two-Ply Warps.

10s	32	12s	32½
14s	33½	16s	34½
20s	35 @36	24s	38
26s	38½ @39	30s	39 @40
40s	46 @47		

Frame Spun Carded Yarn on Cones.

8s	29½ @30	10s	30 @30½
12s	30½ @31	14s	31 @31½
16s	31½ @32	18s	32 @32½
20s	32½ @33	22s	33 @33½
24s	35 @35½	26s	35½ @36
30s	37½ @38	40s	44½ @45
30s dbl. carded	39½ @40	30s tying in	35½ @36

Carpet and Upholstery Yarn in Skeins.

8s and 9s 3-4 hard white warp twist	30
8s and 9s tinged tubes	28½
8s 3-4 hard twist waste	28

Two-Ply Combed Peele Skeins and Warps

8s	46	20s	48 @49
24s	51 @53	30s	54 @56
40s	57½ @59½	50s	62½ @64½
60s	70 @73	70s	80 @84
80s	95 @99		

Single Combed Peeler Yarn on Cone

18s	44 45	24s	48 @49
30s	52 @53	36s	54 @55
38s	55 56	40s	56½ @58
50s	61½ @63	60s	69 @71
70s	79 @81	80s	94 @96

Mule Spun Carded Yarn on Cones.

10s	36	12s	36½
14s	37	16s	37½
18s	38	20s	38½
24s	40 @41	26s	41 @42
30s	42 @43	40s	50 @51

Mule Spun Combed Peeler Yarn on Cones.

10s	45 @46	12s	46 @47
14s	47 @48	16s	48 @49
18s	49 @50	20s	52 @53
22s	53 @54	26s	54 @55
28s	55 @56	30s	57 @59
36s	60 @62	38s	62 @64
40s	64 @66		

Export and Import Agent for Textiles.

Fred C. Myers has formed the F. C. Myers Co., P. O. Box 2024, Atlanta, as an export and important commission agent, and announces plans for handling textile fabrics such as percales, shirtings, etc., for the export trade.